THE AMERICAN YEAR BOOK

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1934

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THE AMERICAN YEAR BOOK

A Record of Events and Progress

YEAR 1934

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A SUPERVISORY BOARD REPRESENTING NATIONAL LEARNED SOCIETIES

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PREFACE

This volume of The American Year Book—the twentieth of the series—is offered to its readers as a compendium of the social, political and economic experience of the American people in the year, 1934. The subject matter in these pages ranges over a period of twelve months remarkable for a bold experiment in national government and fraught with possibilities not yet completely developed. The purpose of the Editors is to present a clearly focused picture of events and achievements in the United States and in the area of American influence. The cooperation of some two hundred authorities and experts in all fields of action and of knowledge has been enlisted in reducing to measurable terms the mass of daily news developments. Every effort has been made to ensure accuracy, to effect readability and to preserve the value and flavor of contemporary interpretation.

The Supervisory Board of The American Year Book Corporation assumes responsibility for the contents and the arrangement of the various topical divisions of the volume. The membership of the Board is composed of representatives of forty-five learned societies of national scope and significance. The Board, therefore, reflects the close association of leading Watchmen on the Tower who have joined forces to make this work a composite presentation of America in scene and in action. Thus through the guidance of the Board in conjunction with the impressive list of experienced contributing writers, the Year Book aids thinking men and women to form a sound judgment of the events of today, and secures for future reference through the successive volumes a readily accessible collection of comparative data.

The recent issues of the Year Book contain material which the Editors hope may be especially helpful in the prosecution of research in all fields of learning. Reference is made to the lists of cognate societies appended to each major division. Experience shows that the learned societies of the nation cordially welcome inquiries from workers in their respective fields. These lists are carefully checked from year to year and constitute a bond between expert knowledge and research. Thus the Year Book becomes an intermediary between special studies of various grades of advancement and the responsible authorities in the various branches of learning. An additional feature, which should prove highly convenient for reference purposes, comprises the political and financial chronologies compiled from the valuable chronological records of *The New York Times*.

Since the reorganization of The American Year Book Corporation in 1925, the publication of the Year Book has been made possible by the generous interest and cooperation of Mr. Adolph S. Ochs of *The New York Times*. By placing this broad summary of the nation's annual progress at the service of the American people, Mr. Ochs has displayed that high spirit which animates his conception of public service.

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THE AMERICAN YEAR BOOK

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A RECORD OF EVENTS AND PROGRESS

PART ONE

HISTORICAL

DIVISION I

AMERICAN POLITICAL HISTORY

CONGRESS AND ITS FUNCTIONS

By George C. S. Benson

Director, Publications Division, American Legislators Association

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DIVISION OF EXECUTIVE AND LEGISLATIVE CONTROL

When the second session of the Seventy-third Congress met on January 3, 1934, it served to bring into clearer perspective the lack of responsibility inherent in our so-called Presidential system of government. For the first time, a regular session convened at the beginning of the year. The organization of March, 1933, was continued in the House with Rainey as Speaker and Byrns and Snell as Democratic and Republican leaders. McNary was Republican leader in the Senate and Robinson of Arkansas the majority leader. The crisis of 1933, had helped President Roosevelt to hold a commanding position in legislation during the first session of the same Congress. Now, in 1934, with the worst features of the crisis over and with a considerable number of jobs already dispensed to deserving Democrats, it became evident that all talk of a ''dictatorship'' of F. D. R. was buncombe. Congress reasserted, slowly it is true, much of its old-time control over administrative processes, and special interests began to tangle the Administration's fiscal program. Had it not been a fiscal program of an essentially political sort, even an unusually popular Chief Executive would have had little responsibility.

By one of the ironical tricks which history loves to play, the separation of powers, long heralded as the factor which kept American business free from interference by a well coordinated governmental machine, now reacted against the executive in the various semi-demagogical measures which those same business interests feared and opposed. Before a Congressional election in which the entire House, and 17 Democratic, one Farmer-labor, and 17 Republican Senators were to face their constituents, it became clear that the attitudes of special groups, notably the organized veterans, the silver bloc, and certain sectional interests, were to predominate. Since the Administration, focussing its interest on the goal of national recovery, could not advance the interests of all these special groups, the division between legislative and executive departments became one between specific interests and general policy. This was a curious reversal of the theory that the legislative function is one of general policy while the executive handles the specific details. Yet it was one of those inconsistencies inherent in a government of so-called separation of powers.

A few balancing factors saved the executive from frequent repudiation by his own party. Most potent was probably the very effective patronage system built up under the able and discriminating leadership of Postmaster General Farley. Tens of thousands of new jobs not under Civil Service were thrown open to to executive appointment. A number of unusually good non-political selections were made, especially in the higher ranks of the emergency agencies, but very considerable attention was paid to patronage as a means of keeping an executive whip hand over Congress. The grim reality which Civil Service reformers in this country always ignore—that patronage is a substitute for a responsible ministry's control of Parliament—was clearly demonstrated by the Farley machine. Congressmen who had failed to stand by the President on the bitterly contested Economy Act simply did not get patronage unless they showed signs of repentance. Local democratic organizations which failed to fit into the Roosevelt scheme of things were left empty handed.

Of the other methods of executive control of the legislative process, only the veto and congressional machinery need treatment. The President used the veto power sparingly and was badly upset by the veteran bloc on the most important occasion of its use. On the other hand, conferences with Congressional leaders, who then employed every parliamentary trick to help their party leader, were frequent and successful. President Roosevelt showed himself an extraordinarily astute politician, holding the reins loosely most of the time but pulling hard on the check rein when necessary.

APPROPRIATIONS

With regular appropriations of more than $3,500,000,000 and an emergency total of almost $4,000,000,000, a Deficiency Appropriation Bill with $1,000,000,000 more was put through quite readily. The House passed the bill, 309 to 46, on June 4 and the Senate without a record vote on June 15. Naturally, the President had little difficulty in getting money to spend. His fiscal policy was one which made executive control of financial legislation a comparatively easy matter.

VETERANS' LEGISLATION

The most striking of the clashes between executive policy and Congressional special interests came over the time honored issue of veterans' payments. The Independent Offices Bill which contained the veteran item, was put through the House under a special rule which forbade amendments to the economy program. Executive offers of compromise were rejected. The Senate, however, amended the bill and House leaders were unable to send it to conference without instructions from the floor. An amendment introduced by Representative Tabor (R.) of New York restored many Spanish-American and World War veterans to the pension rolls at an estimated cost of $91,700,000 a year. A total of $242,000,000 in war pensions and pay of Federal employees was restored by the House instead of the $333,000,000 suggested by the Senate. The bill as amended passed the House 223 to 191 (For: 202 D., 21 R. Against: 97 D., 89 R., 5 F.L.) The President's own party was not supporting him. When the Senate agreed cutting its increases to House figures thus adding over $200,000,000 to the President's budget, he vetoed the bill. Veteran blocs applied pressure and Mr. Roosevelt was overridden in the House (For: 209 D., 97 R., 7 F.L. Against: 70 D., 2 R.) on March 27, and in the Senate (For: 29 D., 33 R., 1 F.L. Against: 27 D., 0 R.) on March 28. Upon the President's return from an April vacation, he promptly assumed control. Describing himself half threateningly, half humorously as a "tough guy," he arranged conferences with House leaders and important Senators and thus informally attained some of the needed executive control. Presidential politics require an infinity of conferences in a system of separation of powers.

BANKING AND CURRENCY

Silver.—Another process of juggling in which, however, offers of executive compromise were more successful, was on the equally ancient issue of silver. Silver state representatives decided they would no longer be fooled by permissive legislation which gave the executive power to buy silver but did not compel him to buy it. The President held out strongly against any law compelling the purchase of a specified number of ounces a month. The final compromise between silver representatives and the Administration was a provision that the Federal policy should be to increase the amount of silver purchased to one fourth of monetary stocks. This legislation was recommended by the President and passed the House on May 31, 263 to 77 (For: 246 D., 14 R., 3 F.L. Against: 6 D., 71 R.) and the Senate on June 11, 54 to 25 (For: 46 D., 7 R., 1 F.L. Against: 6 D., 19 R.) The act (Pub. No. 438), required the Secretary of the Treasury to purchase silver, at home or abroad, whenever the proportion of silver in the monetary stocks was less than one fourth. No purchase should be made at a price above monetary value and no purchases of silver now in the United States at a price in excess of 50 cents a fine ounce. When the market price of silver exceeds its monetary value or the monetary value of silver stocks is greater than one fourth of silver and gold stocks, the Secretary is empowered to sell silver. When the President deems it necessary he may call all silver in to the mints; this he did by proclamation on Aug. 9.

Gold. — The Gold Reserve Act (Pub. No. 87, H.R. 6976) was passed in almost the exact form outlined in the presidential message of Jan. 15. The terms of the act as approved on Jan. 30, 1934, transferred title to all gold in the Federal Reserve system to the Federal Reserve Board. Federal reserve notes were henceforth to be redeemable in lawful money rather than in gold. The Secretary of the Treasury was given power to prescribe conditions of gold export and commercial use of gold. All gold coin was to be withdrawn from circulation. Profits from increase in dollar value of gold held by the United States should be covered into the Treasury as a miscellaneous receipt. The Secretary was also given the power to buy and sell gold and to carry on transactions in international exchange.

Containing as it did, power for far reaching control of the Federal Reserve system and easy inflationary powers, this act excited considerable opposition from conservative Republicans and even a few Democrats. Senator Carter Glass led the opposition, characterizing the devaluation clauses as an ''invalid and illegal process'' continuing the ''lie'' uttered on the currency when it said a particular piece of paper money was ''redeemable.'' Senator Hastings of Delaware declared that the bill undertook to legalize robbery by taking property without due process of law. The bill passed the House on Jan. 20 by a vote of 360 to 40 (For: 287 D., 68 R., 5 F.L. Against: 2 D., 38 R.) and the Senate on Jan. 27 by a vote of 66 to 23 (For: 55 D., 10 R., 1 F.L. Against: 1 D., 22 R.) Republican Senators supporting the measure included Borah, Johnson, La Follette and Norris. Glass voted against it and one Democrat, Gore, was paired against the bill.

Bank Deposit Insurance Act. — Less Administration approval was attached to the Bank Deposit Insurance Act (Pub. No. 362) approved on June 16, which extended for an additional year (to July 1, 1935) the temporary plan for deposit insurance. It added a provision that non-member banks withdrawing from the insurance corporation should give ten days notice; increased insurance from $2,500 to $5,000 for any one depositor; provided for public display of a deposit insurance sign; and altered the provisions regarding the Reconstruction Finance Corporation. The bill was passed by the House on May 24, and sent back to the Senate with a House provision including the plan for ''pay-off'' of depositors in closed banks. The action was taken over protest of the House leaders who informed Chairman Steagall that Mr. Roosevelt opposed any such proposal. The provision which was most objectionable to the Administration was eliminated and the Conference report was adopted by the House on June 11 and by the Senate on June 12.

RECOVERY MEASURES

R. F. C. Loans.—One feature of the Hoover anti-depression program remained useful. The life of the R.F.C. was extended to Feb. 1, 1935, by an Act approved Jan. 20 (Pub. No. 84). On March 19, the President suggested that loans to industry from the R.F.C. and Federal Reserve banks be arranged. The bill was passed after much Congressional debate, and was approved June 19, 1934 (Pub. No. 417). The total of R.F.C. loans was limited to $300,000,000 and the aggregate amount loaned any one borrower to $500,000. Congress wished no repetition of a Chicago bank episode. An interesting clause authorized loans of not more than $75,000,000 for payment of teacher's salaries; a provision of interest to a very different section of Chicago.

National Housing Act. — Of more social significance was the National Housing Act (Pub. No. 479) approved, June 28, 1934. Drafted after a questionaire on proposed clauses had been sent to all state directors of the National Emergency Council, who consulted with leading bankers and real estate men in their own states, it was a careful statement of what a large section of business wanted, though it contained little to excite the enthusiasm of advocates of housing reform. Skeptics hinted that it was a mere trial balloon to precede real public housing conducted by the PWA. At any rate Congress passed it in much the form proposed by the Administration. There were amendments to the measure which conflicted somewhat with the Administration plan but these were removed in the closing days of the session, possibly under administrative pressure. A Federal Housing Administration was created in order to insure banks, trust companies, and mortgage companies against losses on loans for the purpose of financing alterations, repairs, and improvements upon real property. A revolving fund was created to carry out the provisions of this title. The Act contained the usual flexible provisions for decision by the Administrators which have come to characterize New Deal Legislation. The Administration was also empowered to insure first mortgage of property held by governmental or low-cost housing instrumentalities and to establish national mortgage associations for the purpose of dealing with first mortgages, which could not exceed 80% of the appraised value of the property. A Federal Savings and Loan Insurance Corporation was created to insure accounts of savings and loan associations and to facilitate liquidation of insured institutions.

Agricultural Adjustment. — Without Cassandran powers to foresee drought, Congress and the Administration went in heavily for crop control and agricultural adjustment. Cattle, peanuts, rye, flax, barley, and grain sorghum were added to the list of ''basic agricultural commodities'' of the 1933 act by an amendment approved April 7 (Pub. No. 142, H.R. 7478). Another act (H.R. 8861) approved May 9 (Pub. No. 213) added sugar beets and sugar cane to the list of basic commodities. The addition was made at the suggestion of the President in a message of Feb. 8. It included the interesting provision that the Secretary of Agriculture could forbid importation of sugar from American territories and foreign countries on a quota basis. Louisiana, Florida, and the beet sugar areas were giving added impetus to the growth of executive discretion. The bill passed in the Senate 49 to 18, and in the House by acclamation.

Cotton and Tobacco.—The Cotton Control Act approved on April 21 (Pub. No. 169) gave the Secretary power, if events made it advisable, to levy a tax on cotton ginning, proclaim an ''average central market price'' for cotton, and apportion cotton to states, counties, and farms. In an interesting discussion in the Senate on March 29, Bailey of North Carolina was the only Senator from a state producing a large amount of cotton to oppose the bill in final form. Other opponents raised cries of "farm regimentation" and "collectivism." These unusually sweeping provisions passed by a vote of 39 to 28 in the Senate (For: 36 D., 3 R. Against: 6 D., 22 R.) in the House 235 to 105. A tobacco crop control act of somewhat similar nature was approved on June 28 (Pub. No. 483).

ST. LAWRENCE WATERWAY TREATY

Party lines figured little in the bitter sectional controversies, raised over the St. Lawrence Waterway Treaty, which was the President's first major legislative defeat. The Atlantic seaboard rallied against the bill although our New York President had urged it in a special message of Jan. 10, for "broad national reasons." On March 14, the treaty failed of the requisite two-thirds majority in the Senate by a vote of 46 to 42. (For: 31 D, 14 R., 1 F.L. Against: 22 D., 20 R.) It is interesting to note that an association of governors of the states concerned are now working for ratification of the treaty.

THE TARIFF AND INTERNATIONAL COOPERATION

Important new powers were given to executives and encouragement to the internationalism of the Secretary of State by the reciprocal tariff act which was approved June 12 (Pub. No. 316, H. R. 8687). The act added a section entitled "Promotion of Foreign Trade" to the Tariff Act of 1930. For the purpose of expanding foreign markets, the President is empowered to enter into foreign trade agreements with foreign governments and to proclaim modifications of existing duties and import restrictions in order to carry out these agreements. Duties cannot be changed more than 50%. Bitter Republican opposition marked the debates on this bill. Johnson, Borah and Vandenberg were among the leaders of the opposition, but the minority party was overcome by majorities of 154 to 53 in the House on June 6 and the Senate on June 4, 57 to 33. In sharp contrast to this gesture for international amity was the Johnson bill, approved April 13 (Pub. No. 151) making it unlawful to sell bonds or securities of foreign governments or political subdivisions thereof, in cases where the government and subdivisions had defaulted on payment of obligations to the government of the United States.

By Resolution (Pub. Res. No. 43), approved June 19, an important step in the direction of international cooperation and progressive labor standards was taken. The United States accepted membership in the International Labor Organization. Die-hards of the 1919-20 fight against the League raised a few voices in protest. There was little discussion in the Senate prior to its adoption on June 13.

INDIAN ADMINISTRATION

Another important bill, the Wheeler-Howard (S. 3643) marked the change in administration of the Indian bureau by authorizing Indian organization along tribal lines, for the purpose of buying lands, preventing their sale and carrying on general business. It was passed on June 12 by the Senate, by the House on June 15. It was sent to conference later. This measure was strongly advocated by the President.

RAILROAD EMPLOYEES' PENSION ACT

Another important step for labor was the Railroad Employees' Pension Act, aproved June 27 (Pub. No. 485) which foreshadowed future social legislation. A thorough going retirement system on the basis of employee and carrier contributions was established.

CRIME CONTROL

A series of important measures for crime control were prepared by the Attorney General. Senator Copeland, of New York, also played an important part on these bills. The President, a member of the National Crime Commission, on May 18 approved six of the measures. Curiously enough, an able report on these bills by Raymond Moley made to the President on May 15, received little attention. These bills made it a Federal offense, punishable with heavy fines or imprisonment, to assault a Federal agent or officer on duty, to rob a Federal bank, to incite or participate in a riot at a Federal prison, and to send kidnapping or ransom notes in any form across a State line. They also strengthened the so-called ''Lindbergh kidnapping law'' by giving a jury power to authorize a death sentence where the victim has not been returned unharmed. It was also declared a Federal offense to transport across a state line stolen goods, including bonds and money in excess of $5,000. The bill permitting Federal action in kidnapping cases gave the government power to intervene after seven days on the assumption that if the person kidnapped has not been returned he has been carried across a state line.

Two other acts made important changes in our Federal system. One made it a Federal offense to flee across state lines from state machinery of justice. Another empowered states to enter into inter-state compacts for capture of criminals.

Twelve crime measures were first introduced but four were dropped because of objections raised in committee by advocates of States Rights.

SECURITIES EXCHANGE ACT

After some disagreement between the two Houses, the Stock Exchange Act proposed by the President's message of Feb. 9 was approved June 6. (Pub. No. 291, H.R. 9323, enacted June 1). A commission of five members was established to organize a system of registration of national securities exchanges. The Federal Reserve Board, deemed safer than a ''radical'' commission which the President might choose, was given power to set up margin requirements. Borrowing for speculative purposes from Federal Reserve banks was prohibited as was manipulation of security prices in a number of ways.

The bill was introduced Feb. 9, 1934 by Senator Fletcher and Representative Rayburn. Hearings before a Senate committee, began on April 11, 1932. Advocates of the original bill tried to place administration in the hands of the Federal Trade Commission. The Senate, however, insisted on the Glass amendment providing an independent commission but compromised by accepting the House's margin provisions (that the loan value of securities must not exceed 55% of the current market quotation or 100% of lowest market price in the three preceding years). President Roosevelt on March 26 sent letters to both Houses urging its passage ''with teeth in it.'' On May 4, the Rayburn bill passed the House 281 to 84 (For: 255 D., 22 R., 4 F.L. Against: 11 D., 73 R.). On May 12, the Fletcher bill passed the Senate 62-13 (For: 47 D., 15 R. Against: 1 D., 12 R.). The bills were in conference from May 14 to May 29. May 16 President Roosevelt announced that he favored regulation by the Federal Trade Commission and a fixed margin requirement as in the House Bill.

UTILITIES PROGRAM

Significant steps in the Administration's efforts for lower utility rates were made along several lines. A Federal Communications Commission was created (Pub. No. 416, Approved June 19) to take over the work of the Radio Commission and to investigate other means of communication. The so-called Johnson bill (Pub. No. 222 approved May 14) restrained district courts from taking utility cases out of the hands of state courts or administrative commissions. A resolution approved April 14 (Pub. Res. No. 18) authorized the Federal Power Commission to investigate rates charged for electrical energy.

SUMMARY

All in all the results of the second session of the Seventy-third Congress were fairly encouraging for democratic government. It was clear that nothing like executive ''dictatorship'' had yet appeared; but that a large measure of responsibility for legislation rested with the responsible leadership of the party in power. The President was badly beaten on veterans' legislation by one selfish bloc; worsted on the St. Lawrence Waterway by sectional interests; forced to compromise to another sectional group on the silver issue and compelled to abandon his original program for control of security exchanges. On the other hand he put through his appropriation program with little public trouble—the outside observer cannot, of course, tell what happens within appropriation committee hearings. Where specific items which the Administration wanted were defeated, money was sometimes secured by the roundabout means—of questionable validity in political science if not in law,—of discretionary appropriations from one of the emergency agencies.

Most of the "New Deal" acts—crop control, stock exchange control, currency control—were carefully planned by administrative officials and in several instances toned down to meet Congressional desires. Some very desirable smaller items, like the experiment with Reciprocal Tariffs, membership in the International Labor Office, the utilities bills and some parts of the crime program, which would have been choked off in earlier Congresses, were legislated very neatly and precisely. The term "do-nothing Congress" could certainly not be applied.

The inevitable other side of the reckoning showed that all was not well. Some measures, like the crime control bill and crop control legislation, probably received too little scrutiny from the intelligent minds which, scoffers to the contrary nothwithstanding, make up a large part of Congress. Unified policy on fiscal legislation was certainly lacking and it is difficult to place the responsibility anywhere.

When one remembers that, except for the impending election, conditions favored the executive in every respect, the outlook is not too encouraging for future sessions. Strong majorities of his own party in both Houses, a spending program which it is always easy to vote for, extensive use of patronage, and strong personal popularity favored the President's leadership in legislation. When the time for balanced budgets and retrenchment approaches, or when election vagaries create an opposition majority in one or both Houses, or when new jobs are no longer open or a Civil Service is firmly established, the old condition of Executive-Congressional bickering will be restored. If one favors a stable and slowly moving government he will not mind these inherent difficulties in the separation of powers. If others wish swift and responsible government action, they are bound to be disappointed.

THE PRESIDENT AND HIS POLICIES

By Everett S. Brown

Professor, University of Michigan

DOMESTIC POLICIES

Message to Congress.—In his message to Congress, Jan. 3, 1934, President Roosevelt indicated in a general way the policies which he intended to pursue. He expressed the desire to cooperate with Congress "to continue the restoration of our national wellbeing and, equally important, to build on the ruins of the past a new structure designed better to meet the present problems of modern civilization." Declaring that civilization could neither go back nor stand still, President Roosevelt asserted that it was the joint task of the legislative, the judicial and the executive branches of the National Government "to consolidate what we are doing, to make our economic and social structure capable of dealing with modern life." Referring to the program of planned flood control, power development and land use policies, in the Tennessee Valley and in other great watersheds, the President said he looked forward "to the time in the not distant future, when annual appropriations, wholly covered by current revenue, will enable the work to proceed with a national plan.'' The President stated that he regarded it as his duty ''to use whatever means may be necessary to supplement state, local and private agencies for the relief of suffering caused by unemployment.'' He added, however, ''we shall, in the process of recovery, seek to move as rapidly as possible from direct relief to publicly supported work and from that to the rapid restoration of private employment.'' Through an integrated program, the President expressed the desire to save the ''genuinely important values created by modern society,'' such as useful mechanical invention, machine production, industrial efficiency, modern means of communication, broad education. He condemned ''the unnecessary expansion of industrial plants, the waste of natural resources, the exploitation of the consumers of natural monopolies, the accumulation of stagnant surpluses, and the ruthless exploitation of all labor, the encouragement of speculation with other people's money.''

Relief and Unemployment.—In various speeches and messages during the year, President Roosevelt developed his plans for the relief of the distressed and unemployed. Speaking to the directors of the National Emergency Council on Feb. 2, he emphasized the importance of a realization that relief work had nothing to do with partisan politics but was ''based on a conception that is far beyond local politics or the local building up either of a political machine or a party or personal machine.'' On Feb. 28, coincident with the plans for the demobilization of the Civil Works Administration, he announced his new unemployment program. This new program was calculated to meet the needs of three distinct groups: (1) distressed families in rural areas; (2) those composing ''stranded populations''—persons living in communities in which there is no hope of future re-employment; (3) the unemployed in large cities. With respect to the first group it was hoped to keep them identified with agriculture by assisting them to become self-supporting. In the case of ''stranded populations,'' the solution involved their physical removal. The unemployed in the large cities were entitled, the President contended, to receive adequate assurance of means to maintain themselves during the balance of the period of their enforced idleness. He declared, however, that ''the Federal Government has no intention or desire to force either upon the country or the unemployed themselves a system of relief which is repugnant to American ideals of individual self reliance.'' Addressing NRA code authorities on March 5, President Roosevelt ridiculed critics who proclaimed that ''we are now committed to Communism and collectivism or that we have adopted Fascism and a dictatorship.'' He answered these critics by declaring that what we are seeking is ''balance between agriculture and industry and balance between the wage earner, the employer and the consumer.'' He denied emphatically that we would go back either to the old conditions or to the old methods. He said that, while no one is opposed to sensible and reasonable profits, yet while so large a part of our population was in actual distress, ''that as between profits first and humanity afterwards, and humanity first and profits afterwards, we have no room for hesitation.'' He challenged industry to employ more people at purchasing wages and to do it immediately, since the Government could not forever continue to absorb the whole burden of unemployment. Continuing this theme in an impromptu speech in the Department of Commerce auditorium on April 24, the President chided the nation for its disinclination to study national planning seriously. He claimed that we were going through evolution, and not revolution. On May 15, in a message to Congress, he asked for $1,322,000,000 to carry on relief work in the fiscal year beginning July 1. In another message to Congress, on June 8, he outlined his future objectives. The first was the security of men, women and children. This involves three factors; decent homes in which to live; homes located where productive work can be engaged in; some safeguard against unavoidable misfortunes. The first factor can be met by Federal and local housing projects; the second by careful national planning concerning the development of natural resources; and the third by a system of social insurance. In the latter connection, the President urged a maximum of cooperation between states and the Federal Government, the insurance to be national in scope, with the states meeting a large portion of the cost of management. This insurance should be raised by contribution rather than by an increase in general taxation. The President stated that he had begun to make the necessary studies for the formulation of plans for the consideration of the Seventy-fourth Congress. In proposing this program the President repeated his assurance that he had not imposed undue restriction upon private business, and expressed the hope that private initiative would relieve the government in the immediate future of much of the burden it had assumed. Addressing the advisory council of the National Conference on Economic Security, Nov. 14, President Roosevelt repeated that he would offer recommendations to Congress on the subject of social insurance. While not definite as to details he said unemployment insurance would be in the program on a cooperative Federal-state basis. Although favoring old-age pensions, the President expressed uncertainty as to whether the time was ripe for Federal legislation on the subject. He said the first task was ''to get the economic system to function so that there will be a greater general security.''

NRA and Labor.—In a radio address delivered Sept. 30, President Roosevelt reviewed NRA and labor policies. He stated that we had passed through the formative period of code-making in the NRA and had effected a reorganization of the NRA suited to the next phase,—''a period of preparation for legislation which will determine its permanent form.'' He said that modifications would be made wherever they appeared to be necessary and recommendations would be offered to Congress ''in order that the functions of NRA which have proved their worth may be made a part of the permanent machinery of government.'' He questioned the wisdom ''of extending code requirements suited to the great industrial centres and to large employers, to the great number of small employers in the smaller communities.'' Admitting that strikes had retarded industrial recovery, President Roosevelt pointed out that the extent and severity of labor disputes during the last twelve months had been far less than in any previous comparable period. He said that with business men and farmers organizing for their respective benefits ''it was natural that the workers should seek and obtain a statutory declaration of their constitutional right to organize themselves for collective bargaining as embodied in Section 7-A of the National Industrial Recovery Act.'' He condemned both employer and workers who declined to use the new methods of adjustment of labor disputes set up by the Federal Government. He said he would not ask either employers or employees permanently to lay aside the weapons common to industrial war but he would ask both groups to give a fair trial to peaceful methods of adjusting their conflicts. In reply to criticisms of the public works program, the President declared that ''we must make it a national principle that we will not tolerate a large army of unemployed and that we will arrange our national economy to end our present unemployment as soon as we can and then to take wise measures against its return.'' At his regular press conference on Dec. 14, President Roosevelt told newspapermen that it was the intention of the Government to retain in NRA the principles of collective bargaining, maintenance of minimum wages and the ban against child labor. These principles were regarded as fundamental and the interest of the Government in them would be continued.

Housing Plan.—In a message to Congress May 14, President Roosevelt urged legislation ''which should tend to improve conditions for those who live in houses, those who repair and construct houses, and those who invest in houses.'' Through loans to individuals by private agencies insured by a governmental agency against loss and through mutual mortgage insurance under governmental direction, he hoped to return many of the unemployed to useful occupation and to produce tangible wealth in a form for which there was great need. He expressed the belief that ''the initiation of this broad and sound program will do much to alleviate distress and to raise perceptibly the standards of good living for many of our families throughout the land.''

Agriculture. — The provisions of the Agricultural Adjustment Act continued in effect during the year, with certain amendments and modifications. In one important instance the President, on Feb. 8, recommended to Congress that sugar beets and sugar cane be made basic agricultural commodities, making it possible to levy a processing tax on sugar. He recommended further that ''the Secretary of Agriculture should be given authority to license refiners, importers and handlers to buy and sell sugar from the various producing areas only in proportion which recent marketings of such areas bear to the total United States consumption.'' This would provide a basis for reduction of production to the needs of the United States market. These amendments were enacted. With respect to cotton, in signing the Bankhead Bill for compulsory control of cotton production, President Roosevelt merely stated that the majority of the cotton producers wanted it and ''a democratic government has consented.'' At a later date he said that, if the Bankhead Act were continued in effect, he would recommend to Congress the removal of restrictions from cotton growers producing two bales or less.

Monetary and Financial Policy.— On Jan. 15, 1934, the President asked Congress for additional legislation to improve our financial and monetary system. Asserting that the free circulation of gold coins was unnecessary and led to hoarding and that the transfer of gold was essential only for the payment of international trade balances, he said it would be wise to vest in the Government the title to and possession of all monetary gold within its boundaries and to keep the gold in bullion. In doing this he recommended that Congress fix the upper limit of permissible revaluation of the gold at 60 per cent. Out of profits to the Government due to revaluation he suggested that a fund of $2,000,000,000 be set up to the credit of the Government. Following the passage of the Currency and Monetary Act, President Roosevelt issued a proclamation fixing the weight of the gold dollar. On May 22 he recommended to Congress legislation on silver, proposing an increase in the use of silver in our monetary stocks, the granting of authority to the President to purchase silver at not more than 50 cents an ounce, and the nationalization of silver, whenever the President should deem it wise. This silver policy was enacted into law on June 19. In an address before the American Bankers' Association on Oct. 25 the President appealed to the bankers ''to renew their confidence in the people of this country'' and take up the burden which the Government had assumed through its credit agencies.

Veterans' Aid.—In the face of repeated demands that further special aid be given to war veterans, President Roosevelt intimated that bonus legislation would be opposed by him. Making an appeal on Oct. 1, to the veterans of Foreign Wars, he declared that the welfare of the nation was common to everyone and must come first in our interests. He added cryptically that ''the lesser things would come in due time.'' However, in dedicating the veterans' hospital at Roanoke, Va., Oct. 19, he asserted that the Federal and state governments had given to the veterans many privileges not accorded to other citizens, and, furthermore, that it had been ''amply demonstrated that the veterans of the World War, today in the prime of life, are better off on the average from the point of view of employment and of annual income than the average of any other great group of our citizens.''

War on Crime. — In signing six bills in May increasing the number of bills which are Federal offenses, President Roosevelt said he regarded this action as an event of the first importance but added that law enforcement and gangster extermination could not be made completely effective until suported by public opinion. He emphasized this point in his address of Dec. 10 at the opening session of the Attorney General's Crime Conference, declaring that it was necessary ''that we realize the importance of common action all along the line.'' He asked the members of the conference to plan a constantly improving administrative structure which would tie together the law-enforcing agencies of Federal, state and local governments. He said it was their duty to keep before the country the facts in regard to crime as a whole until a definite body of public opinion had been built up in opposition to crime.

Power Policy.—In speeches in the Pacific northwest and in the south, President Roosevelt cited the benefits which would come from the Government projects for the development of power. At Tupelo, Miss., Nov. 18, he enumerated his doctrine of ''community rugged individualism,'' in which each individual is encouraged to cooperate with his neighbor instead of hurting him.

FOREIGN POLICY

European Policy.—In his address to Congress on Jan. 3, 1934, President Roosevelt laid down his attitude toward European affairs in these words: ''I have made it clear that the United States cannot take part in Europe but that we stand ready to cooperate at any time in practicable measures on a world basis looking to immediate reduction of armaments and the lowering of the barriers against commerce.''

War Debts.—In a message to Congress, June 1, the President reviewed at length the situation with respect to war debts and pointed out that the American people have felt that the debtor countries were called upon to make a determined effort to discharge their obligations. He added that ''the American people are certain to be swayed by the use which debtor countries make of their available resources.'' He repeated that he had made it clear to debtor countries that war debts to the United States had no relation to reparation payments. He suggested that no legislation on the subject was either necessary or advisable. The entire question had been greatly complicated by the Johnson Act of April 13, which prohibited financial transactions with any foreign government in default on its obligations to the United States.

World Trade.—In a message to the National Foreign Trade Council, Nov. 1, President Roosevelt stated that the Government had given zealous attention to the problem of the decline in world trade and, under authority of the Trade Agreements Act, was seeking to enter into agreements with other countries for the improvement of existing conditions. He said he was ''seeking to rehabilitate international commerce in a way that will benefit not a single nation but all nations, not a group of nations but the whole world.'' The Trade Agreements Act, approved June 12, had been requested by the President as an essential means toward expanding foreign markets. By it the President was given broad discretionary powers in entering into trade agreements with foreign countries.

Far East.—Continued refusal of the United States Government to recognize Henry Pu Yi as emperor of Manchukuo and its opposition to the demands of Japan for reconsideration of the Washington Naval Treaty to the extent of granting Japan naval parity with Great Britain and the United States, form the basic principles of the President's policy in the Far East. In a statement to Japan, made public April 30, the Open Door policy in China was upheld. Toward the end of the year the United States, acting in harmony with Great Britain, notified Japan of their objection to the Manchukuoan oil monopoly. On Dec. 6, Norman H. Davis declared that our Government stood for continuance of the system of naval armaments established in the Washington treaties. Under instructions from the President, he proposed a substantial all-around reduction in naval armaments.

St. Lawrence Waterway.—On Jan. 10, President Roosevelt sent a message to Congress advocating quick ratification of the St. Lawrence Waterway Treaty. He expressed the belief that the completion of the seaway would be a great aid to transportation and would also provide for a beneficial development of electric power. In support of his belief he sent to the Senate statements from reports on the subject prepared by the War Department and the Interstate Commerce Commission.

Cuba and Latin America. — In seeking the advice and consent of the Senate to the new Cuban Treaty, the President, in a message of May 29, repeated that the policy of the United States from now on was one opposed to armed intervention. In the new treaty the contractual right of the United States to intervene in Cuba was abolished. Following authorization by Congress to take such action, President Roosevelt issued a proclamation May 28 prohibiting the sale of munitions in this country to Bolivia or Paraguay as a move toward stopping the war in the Chaco.

NATIONAL PERSONALITIES

By Everett S. Brown

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FRANKLIN D. ROOSEVELT

During 1934 the President's personal popularity continued unabated. While it had been frequently asserted that President Roosevelt was elected in 1932 as a protest, this charge could not be repeated in the election of 1934. Nation-wide approval of him and his policies was the underlying factor of the Democratic gains in the November election. On all sides the victory was regarded as a personal popular triumph for the President, although Republican political leaders claimed that the huge sums of money distributed for relief purposes in the various states had much to do with the result. During the summer months the President made an extensive tour of our territorial possessions, visiting Puerto Rico, the Virgin Islands, the Panama Canal Zone and Hawaii. After about four weeks aboard ship he landed on the Pacific Coast and, journeying eastward, inspected the new national projects on the Columbia, Missouri and Mississippi Rivers. At all ports and places on the tour the President was received enthusiastically by large crowds of people. On several occasions during the year President Roosevelt continued his practice of speaking directly to the people over the radio, reviewing accomplishments of the Administration and outlining plans for the future. His birthday anniversary was celebrated in many communities throughout the country by the holding of Birthday Balls for the purpose of raising funds for the continuation and expansion of the treatment of infantile paralysis at Warm Springs, Georgia. President Roosevelt expressed his appreciation by means of a radio address. In a book entitled *On Our Way* he reviewed the first year of his Administration.

HERBERT HOOVER

Shortly before the November elections there appeared from the press Mr. Hoover's book, *The Challenge to Liberty*. Mr. Hoover defined liberty "as a thing of the spirit—to be free to worship, to think, to hold opinions, and to speak without fear—free to challenge wrong or oppression with surety of justice." Furthermore, liberty means that the individual "must be free to earn, to spend, to save, to accumulate property." This is the liberty which Mr. Hoover found challenged from abroad by Socialism, Communism, Fascism and Naziism, and at home by National Regimentation. Cooperation is essential to liberty, but it must be cooperation through consent among free men, not the compulsion of regimented men. The dictation by the Government of how men are to conduct their daily lives constituted, according to Mr. Hoover, a stupendous invasion of the whole spirit of liberty. Regimentation, in other words, abandons liberty for governmental dictation. The solution of the nation's difficulties, Mr. Hoover held, cannot be achieved by the destructive forces of Regimentation. It can come only by the constructive forces based on liberty.

Mr. Hoover took no active part in the November election. In a letter which was published in *The New York Times* Nov. 6, he stated that "the country needs a Republican party as a virile organization more than ever, and it needs an adequate opposition in the Congress if our institutions are to survive." During the hearings of the Senate committee investigating the manufacture and sale of munitions of war, charges were made that Mr. Hoover, when Secretary of Commerce, had held a conference of arms manufacturers. Mr. Hoover issued a formal statement that he had called the conference at the request of the Secretary of State for the purpose of finding methods of discriminating between sporting arms and war arms prior to the meeting of an international convention in Europe. Counsel for the Senate committee said that a search of the files of the State Department failed to bear out Mr. Hoover's contention.

WILLIAM E. BORAH

Continuing to play an independent part in politics, Senator Borah (Idaho) has aimed his criticisms indiscriminately at Republicans and Democrats. On the one hand he attacked the provisions of the NRA as encouraging monopolies to the detriment of the small business man, and charged that an investigation would disclose shocking waste in the administration of relief funds; on the other, he declared that the reactionary leadership of the Republican party was responsible for the overwhelming defeat in the November elections, and demanded a complete reorganization of the party along more liberal lines. He asserted that the supreme issue for a new platform was protection of the rights, liberties and economic privileges of the average man and woman against monopoly and concentration of wealth.

DONALD R. RICHBERG

When President Roosevelt, by executive order of Oct. 29, merged the Executive Council, the National Emergency Council and the Industrial Emergency Committee, and appointed Mr. Richberg as Executive Director, he set Mr. Richberg high among the officials of the Administration. Regarded by some of his critics as a radical, Mr. Richberg gave assurance in public addresses that the charge was not altogether true. Speaking in Atlanta Nov. 19, he contended that with so many men still unemployed "it would be a suicidal folly now to abandon our new mechanism of cooperation and to let nature take its ruthless course." But he warned that the worst of all quack remedies for recovery was inflation. He stated that he was in favor of steady reductions in the volume of governmental activities and expenditures as rapidly as private enterprise reduces the load of unemployment.

HUGH S. JOHNSON

General Johnson's letter of Sept. 24 to the President, resigning as administrator of the NRA, removed from government circles one of its most picturesque characters. The resignation had been foreshadowed by General Johnson's "anti-textile-strike" speech in New York City Sept. 14. This speech brought widespread protest from labor leaders. General Johnson's "crack-down" policy with respect to all who opposed the NRA created many enemies but it carried that organization through the first year of its existence. The plan of reorganization of the NRA called for the end of one-man control, and General Johnson resigned. His farewell address to his Washington staff on Oct. 1 was a review of his activities and a plea for loyalty to the new leaders. On Dec. 12, General Johnson was appointed by President Roosevelt as one of a committee to propose legislation to ''take the profit out of war.''

HUEY P. LONG

Senator Long, the ''Louisiana Kingfish,'' has become one of the most amazing figures in American politics. Combining political shrewdness with almost unbelievable buffoonery he has been almost continually in the public eye. His threatened filibuster near the close of the second session of the Seventy-third Congress forced the passage of the Frazier-Lemke farm mortgage bill over the opposition of the Administration. In a spectacular struggle with Mayor Walmsley of New Orleans for political control of that city, Senator Long emerged victorious. He followed this success with dictating to the Louisiana Legislature the passage in special session of 44 new laws, designed to further his ''share the wealth'' program and clinch his control of the Louisiana State government. Making use of one of these laws, Senator Long ousted Mayor Walmsley from the chairmanship of the Democratic State Committee and took over the office himself. He accompanied the Louisiana State University football team on its trips and acted as cheer leader and drum major. Criticism of him by editors of the University paper led to the expulsion of several students and involved him in a newspaper controversy with student editors in other universities. Senator Long was also brought into the public lime-light by the decision of the United States Supreme Court that senatorial immunity did not protect him from being sued for alleged libel resulting from the printing and distributing of an attack on Samuel T. Ansell made in the course of a speech in the United States Senate.

ARTHUR H. VANDENBERG

The reelection of Senator Vandenberg of Michigan in the November election when so many Republicans were defeated led to considerable speculation concerning the Senator's political future. His most ardent supporters profess to see in him a possible Republican candidate for the presidency in 1936. Soon after the election, Senator Vandenberg recommended that all legislation in the new Congress be approached from a nonpartisan standpoint. He declared that in the battle for recovery political considerations for 1936 must be secondary to the welfare of the country. However, he accused James A. Farley of playing politics in the New Deal. He questioned the propriety of Mr. Farley's holding the position of Postmaster General while also serving as chairman of the Democratic National Committee.

UPTON SINCLAIR

Capturing the Democratic nomination for governor at the primaries in California, Upton Sinclair, the novelist, made a spectacular campaign. Although accepted at first by such prominent Democrats as Senator William G. McAdoo and George Creel (his opponent for the nomination), Mr. Sinclair was later repudiated by Mr. Creel and received no aid from Senator McAdoo. A letter from James A. Farley, chairman of the Democratic National Committee, endorsing Mr. Sinclair, was later declared by Mr. Farley to have been sent by the error of a clerk. Mr. Sinclair's EPIC plan to ''End Poverty in California'' attracted national attention. He proposed to rent idle land in the neighborhood of cities for subsistence homesteads, by the mere remission of taxes. Factories which were operating at a loss or standing idle would be rented for enough only to cover taxes and overhead. Farmers would pay their taxes in food which would be exchanged by the State for the products of the factories. After a bitter campaign in the course of which his opponents drew heavily on Mr. Sinclair's published books for material to use against him, Mr. Sinclair was defeated. He began immediately to write a book describing how his defeat had been accomplished.

HENRY A. WALLACE

In a pamphlet which had a very wide circulation and aroused much thoughtful discussion, Mr. Wallace, the Secretary of Agriculture, offered three paths of adjustment, one of which America must choose: internationalism, nationalism and a planned middle course. To take the first course we must be ready to import nearly a billion dollars more goods than we did in 1929. The choice of nationalism would probably mean much more governmental control of farming and business than we now have. Secretary Wallace expressed the opinion that it is the middle course which we shal take. In a book entitled *New Frontiers,* he reviewed the entire farm problem carefully and discussed the factors which must be considered in its solution. The book is in many respects an expansion and development of the thesis proposed in the pamphlet, *America Must Choose.*

GERALD P. NYE

Disclosures of huge war profits by munitions makers before the Senate investigating committee under the chairmanship of Senator Nye (North Dakota), made Senator Nye's name not only nationally but internationally known. Prominent governmental officials in various countries were found to be implicated in munitions contracts. From the lecture platform Senator Nye denounced the ''munitions racket'' and demanded that the industry be rigidly controlled by the Government. Senator Nye also joined Senator Borah in a demand that the Republican Party be reorganized on a basis of ''constructive liberalism'', divorcing itself from control by big business and becoming a party of farmers and laborers, producers and consumers.

LEWIS W. DOUGLAS

Resigning his post as Director of the Budget, Mr. Douglas in a speech delivered in New York City Dec. 12, took sharp issue with the Federal recovery program. The only way to recovery, he declared, lay in a stimulation of the heavy industries by balancing the Federal budget. To do this it was necessary to stop all public works expenditures and discontinue the Civilian Conservation Corps. He asserted that the policy of huge public works expenditures and continuing deficits would result in a collapsed currency. He warned that continued national deficits would lead to inflation. Further depreciation of the dollar in the world exchange market would follow inflation, he stated, resulting eventually in another destructive war.

THE NATIONAL RECOVERY ADMINISTRATION

By Frederic Dewhurst

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COMPLETION OF CODIFICATION

The recruiting period under the NRA was rapidly drawing to a close by the end of 1933. The beginning of 1934 saw more than 18,000,000 workers placed under codes of fair competition or employed in establishments operating under the President's Reemployment Agreement pending the adoption or approval of codes covering their operations. The process of codification continued rapidly during the first half of 1934 and was virtually completed by the end of the summer, when more than 500 codes of fair competition and nearly 150 supplementary codes had been approved, and more than 95 per cent of all industrial employees, or approximately 23,000,000 workers, were employed in establishments operating under code hour and wage provisions.

Although the codification of industries had proceeded more slowly than was originally expected, the enlistment of virtually all of American industry and labor under the Blue Eagle during the brief period of a year after the task was first undertaken, was a truly remarkable accomplishment attributable very largely to the untiring efforts and dynamic leadership of General Johnson.

EFFECTS OF NRA ON EMPLOYMENT

With practically all of American industry operating under codes it was possible by the middle of 1934 to attempt some appraisal of the effects of the NIRA upon industry and labor. Whatever may have been the direct and immediate effects upon employment and earnings of the wage and hour provisions of the codes and the PRA (President's Reemployment Agreement), as distinguished from the influence of general business recovery, it is clear that a substantial improvement had occurred in the position of labor under the NRA. In the report of Donald Richberg, executive secretary of the Executive Council, to the President it was estimated that a total of more than 4,100,000 unemployed persons had been put back to work since the new Administration came into office in March, 1933, of whom 1,800,000 were reemployed prior to the NRA and 2,300,000 subsequent thereto. ''The latter increase,'' in the words of this report, ''is mainly due to shortening of hours under NRA codes. Reemployment under the codes rose and declined in separate trades and industries throughout the year, from seasonal and other causes, so the gross volume of reemployment far exceeded the foregoing net increase, having been estimated at more than 3,000,000 workers.''

A large part of this gain in employment can be attributed to the shortening of work hours under the codes. According to George Terborgh of the Brookings Institution staff engaged in a study of the effects of the NRA, the code restrictions on hours added about 1,750,000 workers to the nation's payrolls. Thus, nearly three-fourths of the estimated net employment increase of 2,300,000 under the NRA represents ''sharing of work'' on the part of workers who were already employed prior to the adoption of codes and whose work-week was reduced from an average of 43 hours before the NRA to about 37 hours after industrial codification had been completed. Additions to the nation's payrolls of some 500,000 to 600,000, therefore, appear to represent the net employment gain attributable to general business recovery rather than to shortening of hours. Most of this gain, however, occurred during the early months of the NRA and not during 1934. In fact the American Federation of Labor recently estimated that the total number of unemployed in November, 1934, was actually greater than a year earlier.

Labor gains from the higher wage provisions of the codes were substantial. As stated by Mr. Richberg in his report to the President: ''The effect of these provisions is shown in the estimated increase in labor's share in the national income from 58.3 per cent in June, 1933, to 62.5 per cent in June, 1934.'' The report further estimates that the total wages in manufacturing industries increased from $96,000,000 to $132,000,000 a week during this period, or a gain of 37.5 per cent. After making allowance for a 9.6 per cent increase in the cost of living during the same period ''a net increase of 25 per cent in the total purchasing power of manufacturing wage earners'' was realized.

Especially significant, however, is the statement: ''The individual wage earners did not obtain a similar increase—the average per capita weekly earnings in manufacturing rising only 8.5 per cent. Therefore the average manufacturing worker's purchasing power remained practically unchanged; although by shortening hours he 'shared his work' with new employees without an individual loss in 'real wages.' '' The conclusion is inescapable that, in so far as the wage and hour provisions of the codes are concerned, the system erected and administered by the NRA during the past year and a half has been primarily a ''work-sharing'' or ''work-spreading'' device. By working fewer hours, those already employed have shared their jobs with new workers added to payrolls. In terms of purchasing power the average earnings of both "new" and "old" workers have remained about the same as those of the latter before the organization of the NRA. That this spreading of work and absorption of unemployed was accomplished without actual loss in average "real" earnings of workers previously employed is attributable to a moderate business recovery. But the extent to which this recovery may be due to, or indeed may have been impeded by, the NRA is not determinable.

Probably the most favorable appraisal of NRA effects in promoting recovery is contained in the following quotation from the Richberg report to the President: "The exact contribution of NRA to this industrial recovery cannot be established statistically; but the coincidence of business improvement with the NRA codification and the obvious, direct effects of NRA in preventing destructive price-cutting, in stabilizing business operations, in improving the total purchasing power by providing increased employment without reduction of compensation, and in the increase of prices from loss levels to profit levels, demonstrate the dominant influence of the NRA in this industrial advance. When specific industries such as bituminous coal, automobiles, and oil are considered, the effects of codification are clearly apparent."

In addition to the direct absorption of unemployed and the maintenance of real wages, other tangible beneficial effects of the codes upon labor have been the elimination of child labor, the restriction of home work in industries where this practice was an evil, the increase of leisure through reduction of hours, the improvement of health and safety standards in many industries and the strengthening of the position of labor in collective bargaining. Organization of industry in trade associations and of labor in trade unions was of course greatly accelerated. In addition to large increases in membership, the number of trade associations doubled; the American Federation of Labor increased its membership by more than 2,000,000, and there were large gains in the number and membership of all types of labor organizations including "company unions."

CHANGES IN ADMINISTRATIVE ORGANIZATION

As an intensive drive for codification of American industry began to slacken in the early part of 1934 and the emotional fervor for the Blue Eagle began to subside, problems of enforcement, administration and policy determination commenced to loom large on the NRA horizon. Criticism and dissension, which were virtually non-existent during the evangelistic period, grew in volume and violence. Even the staunchest original advocates of the Recovery Act and program came to realize that drastic changes would be required, both in organization and policy, before the NRA could attain many of its objectives.

The changing character and volume of work to be done by the NRA has resulted in many alterations in its administrative set-up. During the early period of intensive effort to codify all industry, the organization was almost of necessity under a one-man dictatorship. Upon the passage of the act in June, 1933, the President by executive order appointed General Hugh S. Johnson as Administrator with broad powers to appoint temporary personnel, delegate authority and conduct hearings. General Johnson was theoretically answerable to the Special Industrial Recovery Board, whose membership included, in addition to himself, the Secretaries of Commerce, Interior, Agriculture, and Labor, the Attorney General, the Director of the Budget, and the Chairman of the Federal Trade Commission. In practice, however, this Board had little influence over the NRA.

A second executive order authorized the Administrator to make permanent appointments, fix the rates of compensation, conduct hearings and perform other functions vested in the President under Title I of the Recovery Act, with certain exceptions such as the approval of codes, the making of agreements and the issuance of licenses. A third Executive Order, on Dec. 30, 1933, authorized the Administrator to approve all codes except those for major industries employing more than 50,000 workers, and changes in other codes.

By the beginning of 1934, the special Industrial Recovery Board had been replaced by the National Emergency Council with the following members: Secretary of the Interior, Secretary of Agriculture, Secretary of Commerce, Secretary of Labor, Administrator of Agricultural Adjustment, Administrator of Federal Emergency Relief, Chairman of the Home Owners' Loan Corporation, Governor of the Farm Credit Administration, a representative of the Consumers' Council, and the Administrator for Industrial Recovery.

To aid in the consideration and administration of agreements and codes, the Administrator created within the NRA various technical divisions and advisory boards and appointed assistant and deputy administrators, counsels and economic advisors. The advisory boards are: the Industrial Advisory Board, named by the Secretary of Commerce to consider questions of NRA policy affecting business and to appoint special advisors to assist in code negotiations; the Labor Advisory Board, appointed by the Administrator and the Secretary of Labor to consider questions of labor policy and to appoint advisors to assist in code negotiations; and the Consumers' Advisory Board, appointed by the Administrator, with a special interest in code negotiations as they affect prices and the interests of the consumer. The National Compliance Board was a branch of NRA organized to deal with complaints of violations of code provisions. This Board was abolished in May, 1934, and its place was taken by the Compliance Division, which refers complaints it is unable to adjust directly to the Administration with a recommendation for further action. This may involve removal of the Blue Eagle or requisite legal action. The ultimate enforcement mechanisms of the NRA are two formerly existing government agencies, the Department of Justice and the Federal Trade Commission, to which unadjusted violations are finally referred for legal action. The two most important technical divisions are the Legal Division which advises on questions of the legality of codes, and the Research and Planning Division which advises generally on statistical and economic questions. The Trade Association Division has been active in organizing code administration machinery. The Import Division has made investigations relative to the restriction of imports.

The work of these and other special divisions has been directed by special assistant administrators. In addition to these special divisions, several industry divisions under divisional administrators were created for the administration of the several hundred code authorities. At the end of August, 1934, the NRA announced a new and more logical grouping of codes into four major and 22 minor classifications, presumably designed eventually to bring about mergers of existing codes and a reduction in the number of codes from nearly 700 to approximately 250.

Under the new 22 industrial classifications, the administrative divisions of NRA are responsible for codes which are closely related. Trade associations are encouraged to maintain their identities, but allied industries in general are tempted to combine in order to reduce code authority expenses and administrative overhead, to facilitate identical treatment for related industries and to make possible more accurate and comprehensive statistical information.

The four basic industrial divisions are: (1) production of basic materials from the soil, (2) fabrication of basic materials, (3) service, (4) wholesale and retail distribution. Under these divisions are the following industrial sub-divisions: producing industries, (1) food, (2) textiles, (3) leather and (4) ferrous metals, (5) non-ferrous metals, (6) non-metallic products, (7) fuel, (8) lumber and timber, (9) chemicals, paints and drugs, (10) paper, (11) rubber; fabricating industries, (12) equipment, (13) manufacturing, (14) graphic arts, (15) construction; service industries, (16) public utilities, (17) transportation, (18) communication, (19) finance, (20) amusements; distribution, (21) professions and services, (22) wholesale and retail trades.

The most dramatic NRA event and most significant administrative change in 1934 was the resignation of General Johnson as Administrator and the complete revamping of the upper layer of the NRA organization. During the formative period prompt decisions were imperative and the deliberations of a governing board would have impeded the hoped-for progress. Authority was necessarily, therefore, centralized in the Administrator who dominated the whole complicated structure.

With the structure completed, a rising tide of criticism and the need for numerous important changes becoming more and more apparent, the presence of the original organizer was a handicap. General Johnson, himself, recognized the fact that the nature of the task of administration was beyond the powers of any one man, and urged that a board be set up to take over the administration. The President assigned Donald Richberg to study the NRA and to make suggestions for an overhauling.

Following General Johnson's resignation, which became effective Oct. 15, 1934, the plan of reorganization was announced. The duty of administering the NRA devolved upon two boards:

(1) The National Industrial Recovery Board, which took over the work of the former Administrator and will determine most of the policies of the NRA. This board, originally numbering five, later increased to seven by the addition *ex-officio* of the Chief of the Division of Research and Planning and the Acting General Counsel of the NRA, now has the following members: S. Clay Williams, Chairman, representative of industry, former chairman of R. J. Reynolds Tobacco Company; Arthur D. Whiteside, president of Dun & Bradstreet, NRA division administrator; Sidney Hillman, founder of one of the largest labor unions, member of Labor Advisory Board of NRA; Leon C. Marshall, member of National Labor Board; Dr. Walton Hamilton, former chairman of Advisory Council of NRA, and Leon Henderson and Blackwell Smith, *ex-officio*.

(2) The Industrial Emergency Committee, originally appointed June 30, 1934, with Donald Richberg as Director and the following additional members: Harold Ickes, Secretary of the Interior; Frances Perkins, Secretary of Labor; S. Clay Williams, Chairman of the National Industrial Recovery Board; Chester C. Davis, Administrator of AAA, and Harry L. Hopkins, Federal Emergency Relief Administrator. This Committee, which ranks above the National Industrial Recovery Board, faces the task of coordinating the various parts of the recovery program and of preparing legislation for a permanent NRA. The Industrial Emergency Committee was made responsible for the general policies of NRA which are to be administered by the Recovery Board.

Initial responsibility for administration of the codes rests, of course, with the code authorities in each of the several hundred codified industries. Members of code authorities are selected by the industries although the method of selection must be approved by the NRA. All code authorities have one or more government members appointed by the Administration to serve as liaison agents and observers at code meetings, and a large number of codes also provide for one or two labor representatives. The effectiveness of code authorities in enforcing code provisions varies widely from industry to industry, as do the methods and organization employed and the costs of administration. Taken as a whole, the year's experience has exposed many fundamental weaknesses in the administration of the codes, notably excessive costs of administration, failure to secure compliance, delays in making decisions and difficulties in securing prompt action on the part of the Administration. Establishment of the NRA and code authority machinery on a permanent basis will probably necessitate a considerable reduction in the number of codes, clarification of the code authority responsibilities, speeding up of compliance activities and the establishment of channels and methods whereby code authority action subject to review by the Administration will receive prompt attention and action in the NRA. More than anything else, however, the task of the code authorities and the NRA must be vastly simplified else any administrative organization must fail to perform its function.

DIFFICULTIES OF ENFORCEMENT

During the period of intensive codification following the passage of the Act, the NRA pursued an essentially opportunistic policy in conducting hearings so as to speed up the adoption of codes. Except for the inclusion of the mandatory provisions regarding collective bargaining no attempt was made to standardize the provisions of the codes adopted during 1933. The result was that there were wide variations in their complexity and scope, particularly with respect to provisions concerning price filing and price fixing, cost accounting, production control and fair trade practices. By the end of 1933 it became apparent that many of these provisions were proving difficult to enforce and, even if enforceable, were contrary to the public interest. Enforcement of many other provisions was also proving difficult particularly in the case of the retail and service trades and small manufacturing establishments. Labor contended that the famous Section 7a, guaranteeing the right of collective bargaining, was a dead letter in many industries, while employers claimed that destructive strikes growing out of this section were retarding recovery.

Early in 1934, therefore, it became evident not only that a drastic overhauling of administrative machinery from top to bottom would be necessary, but that major policies would have to be definitely clarified before the NRA could become effective as an operating and administrative organization. Criticism came to a head at a general conference of code authorities called by the Administrator on March 5, 1934, for the purpose of "the consideration in public sessions of the possibilities of increasing employment; protection against destructive competition and against excessive prices and monopolistic tendencies; the elimination of inequalities and inconsistencies in codes; the position of small enterprises, and the vast problem of code administration and the organization of industry for self-government."

HOURS AND WAGES

At these sessions the Administration emphasized the need of absorbing a larger proportion of the unemployed and proposed tentatively a 10 per cent decrease in maximum hours and a 10 per cent increase in hourly wages. This proposal was vigorously opposed by industrial representatives present who pointed out that the burden of this change would fall most heavily on the extremely depressed durable goods industries where the reduction in hours would have little effect but the increase in wage rates would be unsupportable. During the remainder of the year there was further discussion of the shorter work week, but the NRA apparently abandoned the idea of forcing the "10 and 10" plan on all codified industry. As the 1935 session of Congress opens, however, it is expected that Congressman Black will again press the adoption of his "30-hour" bill which will probably have considerable support from organized labor.

COMPLAINTS OF SMALL BUSINESS

The complaints of small business against the NRA, which were thoroughly aired at the conference of code authorities, had already been heard before the end of 1933. They contended that the recovery program was working to their disadvantage because of increased costs of operation under the codes and the difficulty of borrowing working capital. In December, Senator Nye and Senator Borah called the attention of General Johnson and President Roosevelt to this problem, and at the code hearings Senator Nye said that he had received more than 18,000 complaints from small business enterprises stating their problems. Senator Borah's opinion that the suspension of the anti-trust laws under the NRA had left small business defenceless against the unfair competition of large concerns led him to introduce a bill to reinstate these laws.

General Johnson and other NRA defenders insisted that small business had been helped rather than oppressed by the NRA and said that complaints were received almost exclusively from establishments which could not survive without exploiting their workers. Assurance was given that legitimate complaints would be properly taken care of.

However, these criticisms led the President to authorize the presentation of complaints regarding monopolistic tendencies to the Federal Trade Commission. This Commission was authorized to institute proceedings against those engaged in monopolistic practices "whenever it shall appear to the Federal Trade Commission that proceeding by it in respect thereof would be to the interest of the public."

On Feb. 19 General Johnson announced the creation of the National Recovery Review Board, with Clarence Darrow as chairman, to examine the codes and to ascertain whether they were designed to promote monopolies to eliminate or oppress small enterprises or to operate against them, and to recommend such changes in the codes as would eliminate such results. The Darrow board held a series of public hearings which offered an opportunity for critics and defenders of the codes and the NRA to air their views. It also reviewed in considerable detail the operations of eight important codes. The final report, which was most critical in tone and content, was released July 2, 1934, and was met with a torrent of criticism from Mr. Richberg and General Johnson and from spokesmen for the industries whose codes had been criticised in the report. The report concluded that the codes in many industries were unfair to small enterprises and were promoting rather than restraining monopoly, that code authorities were dominated by representatives of large units, that the cost of code administration was burdensome on small units and that the multiplicity of codes for small industries needlessly increased costs.

Despite the unfortunate tone and certain inconsistencies in the report, it undoubtedly served a useful purpose in calling attention to the difficulties of small businesses and to the dangers to the consumer inherent in the domination of code authorities by large firms. Although the Darrow board ceased to exist with publication of its final report, the Administration, within two weeks, announced the appointment of the Industrial Appeals Board under the chairmanship of Amos J. Peaslee and with John S. Clement and John Augustine Ryan as additional members. This Board hears complaints against codes and recommends changes, and concerns itself chiefly with complaints against code provisions that tend to eliminate, oppress, or discriminate against small enterprises, or to favor monopolistic tendencies, and complaints of noncompliance. It is expected that the findings of this Board will contribute to the reorganization of NRA during the session of the 74th Congress.

PRICE AND PRODUCTION CONTROL

The code conferences in March and the final report of the Darrow board, as well as the administrative experience of the code authorities and the NRA, all brought into sharp relief the difficulties and dangers inherent in the price and production control features of many codes. About two-thirds of the codes provided for standard cost accounting systems and forbade sales below cost. More than half had some provisions for price stabilization usually involving open-price filing with a "waiting period" before price reductions could be announced and a considerable number of important codes, notably among the textile industries, permitted limitation of machine hours, or some other form of production restriction. Many of these features soon proved unworkable or ineffective, and the price control provisions particularly were severely criticized as being contrary to the public interest. Study of the problem within the NRA resulted, on June 7, 1934, in the publication of the now famous Office Memorandum 228, which was prematurely heralded in the press as meaning the end of price-fixing.

Actually this memorandum made no changes in existing code provisions. It was, however, a definite and very significant announcement of NRA policy intended, in the words of the official announcement, to ''govern pricing practices under future codes and to which it is desired to adjust already approved codes by amendments worked out by agreement with code authorities.'' The new policy banned any form of price control except that (a) minimum prices may be fixed by the Administrator when, after investigation, he determines that an ''emergency'' has arisen which imperils small enterprises, tends toward monopoly or endangers the maintenance of wage and labor standards and (b) ''wilfully destructive price cutting'' which in the judgment of NRA imperils small enterprises or tends toward monopoly, is forbidden. Open price provisions with a 48-hour waiting period, and the adoption of nonobligatory cost-finding and accounting systems were permitted.

This important announcement, following close upon the abandonment of the price and trade practice provisions of the service codes, served to clear the air somewhat. But no indication was given as to when and how the new policy would be translated into actual changes in existing codes, most of which provided for some form of price control.

In the meantime court tests of the price-fixing provisions were being made and in an important case involving the retail lumber code, Federal District Judge Merrill E. Otis ruled that price-fixing, even in interstate commerce transactions, was unconstitutional. A few days prior to this decision, on Dec. 22, the National Industrial Recovery Board announced the suspension of all price-fixing provisions of the Lumber and Timber Products Code. Further indication of the trend away from price control is found in the speech of S. Clay Williams, chairman of the National Industrial Recovery Board, before the Merchants Association of New York, on Dec. 13. Mr. Williams said that ''enforcement of price-floor provisions with fairness to all concerned has been demonstrated to be all but impossible'' and that such provisions were ''impossible of fullest acceptance at the hands of the public.'' The Board has announced open hearings beginning Jan. 9, 1935, on the subject of price control and price-fixing and stated its own position to be that ''it is inconsistent with the most effective functioning of our industrial system to have in or under codes of fair competition price-fixing in the form of permanent schedules of minimum prices, with or without mandatory cost systems for the purpose of establishing minimum prices.''

The future policy of the NRA in the matter of production control is not as clearly foreshadowed, although there has been considerable criticism of such provisions. It is significant that production control features of the lumber code were continued in spite of the abandonment of price-fixing. It is clear, however, that production control features of the codes, which the President recently said ''may have gone too far,'' will be modified considerably, except, perhaps, in the raw material industries where overproduction involves the waste of a vital resource.

COLLECTIVE BARGAINING UNDER SECTION 7A

There is abundant evidence that, whatever its attitude toward code trade practice provisions may be, the Administration intends to retain and even strengthen the code provisions relating to wages, hours and working conditions and to collective bargaining. That the NRA will press for further reductions in hours and proportionate increases in rates of pay seems less doubtful than it did in the middle of 1934, although the present support behind the 30-hour bill may make some such compromise politically expedient.

Enforcement of the wage and hour provisions of the codes during the past year, although far from complete, has been much more effective than that of most other code provisions. Section 7-a, however, has presented innumerable difficulties with respect to both interpretation and enforcement. Although the code authorities are theoretically responsible for enforcement of these collective bargaining provisions, very few have established effective procedure for dealing with complaints arising under this section.

Indeed, primary responsibility for handling such complaints was lodged in the National Labor Board soon after passage of the Act. This Board, under the chairmanship of Senator Wagner and comprising members representative of industry, labor and the general public, was created by order of the President with power to pass on cases of hardship or disputes arising under the PRA and to settle by mediation, conciliation or arbitration controversies between employers and employees. By a second executive order in February, 1934, the Board was authorized (1) to supervise elections in accordance with Section 7-a to insure employee representation in dealing with employers and (2) to report to the Administration any cases in which employers declined to deal with the representatives properly elected under 7-a and certified by the Board. The Board set up 19 Regional Labor Boards upon which employers and employees were represented, and during 11 months of existence the national and regional boards handled a total of 4,277 cases of which 83 per cent were settled. Nearly two-thirds of the complaints involved Section 7-a, and the majority of these cases were settled by agreement.

Among the important principles established by the Board was the ruling that the organization of company unions must be entirely within control of employees, that discharge of employees because of union affiliations or activity was illegal ''discrimination,'' that employees may select any persons, whether or not fellow-employees, to represent them in collective bargaining, and that the ''majority rule'' should prevail in election of collective bargaining representatives within any department or plant.

The National Labor Board was succeeded by the National Labor Relations Board established June 29, 1934, by executive order pursuant to a Joint Congressional Resolution. This Board, whose present members are Francis Biddle, Harry A. Millis and Edwin S. Smith, is non-partisan, its decisions are not subject to executive review and its authority is confined to disputes involving the right of labor to collective bargaining, holding elections for employee representation and investigation of complaints of discrimination against labor. The Board may act as arbitrator or may select an arbitrator upon request of the parties to a dispute. Special labor relations boards have also been appointed in several important industries, such as steel, automobiles, petroleum and cotton, and the original Regional Labor Boards are now being administered by the National Labor Relations Board.

In spite of the effective work done by the new Board it is apparent that the interpretation and enforcement of Section 7-a will continue to be one of the most perplexing and disturbing problems confronted by the Administration. Organized labor will demand new legislation strengthening Section 7-a and invalidating ''company unions'' while organized employers have already indicated their intention to oppose vigorously the forced unionization of open-shop industries. Much will depend, of course, on questions of constitutionality which will be decided soon by the Federal Supreme Court.

I. AMERICAN POLITICAL HISTORY

FEDERAL LEGISLATION

By Guy S. Claire

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AGRICULTURAL LEGISLATION

Farm Mortgage Refinancing Act.—This act (H. R. 6670, Pub., No. 88) created the Federal Farm Mortgage Corporation, with a capitalization of $200,000,000, another instrumentality to aid in refinancing farm mortgages. The Corporation might purchase Farm Loan Bonds, or make loans to Federal Land Banks on the security of Farm Loan Bonds, and invest its funds in mortgage loans. The Corporation was authorized to issue and have outstanding $2,000,000,000 worth of bonds guaranteed both as to principal and interest by the Federal Government. Its bonds were made eligible security for use by member banks of the Federal Reserve System in borrowing on their own 15-day notes. The act also granted authority to the Land Bank Commissioner to make loans up to $600,000,000 on behalf of the Federal Farm Mortgage Corporation, either in cash or in bonds of the Corporation. The act also made available a revolving fund of $40,000,000 to the governor of the Farm Credit Administration.

Crop Loan Act of February, 1934.—This act, (S. 1975, Pub., No. 97) authorized the governor of the Farm Credit Administration to make loans to farmers in 1934 for crop production and harvesting, and to make loans for feed and livestock in drought-and storm-stricken areas. As security for such loans, the government took a first lien on all crops growing or to be grown and harvested in 1934, or on livestock. Additional funds were made available by legislation in May as the damage from the drought became more apparent.

Bankhead Cotton Control Act (H. R. 8402, Pub., No. 169), approved in April, 1934, attempted to limit cotton production during the year, 1934-35, to 10,000,000 bales for the purpose of stabilizing cotton prices. Quotas were assigned growers, and prohibitive taxes were assessed against all cotton marketed by growers above the quota limit. The operation of the act is limited to one year unless the President by proclamation extends the act for one more year.

Tobacco.—An act (H. R. 9690, Pub., No. 483) was also approved to promote the orderly marketing of tobacco. An attempt was made to limit production of tobacco for the crop year, 1934-35, and a prohibitive tax was placed on excess crops.

Jones-Connally Farm Relief Act of 1934 (H. R. 7478, Pub., No. 142), amended the Agricultural Adjustment Act to include six additional basic commodities, namely, cattle, peanuts, rye, flax, barley, and grain sorghums, within its benefits. The Secretary of Agriculture was empowered to finance reduction of herds of beef and dairy cattle and to balance the markets for the dairy and beef cattle industries. The sum of $200,000,000 was provided for this purpose. In addition, the Secretary of Agriculture was given $50,000,000 to make advances to the Federal Surplus Relief Administration for the purchase of dairy and beef products for distribution for relief purposes and other uses.

Jones-Costigan Sugar Act (H. R. 8861, Pub., No. 213) added sugar beets and sugar cane to the list of basic agricultural commodities, bringing them within the benefits of the Agricultural Adjustment Act. Like practically all other agricultural legislation, the act sought curtailment of the beet and sugar cane crops. The Secretary of Agriculture was authorized to make allotments for importation of sugar from outside continental United States, and to levy processing taxes. The Secretary was also authorized to purchase surplus stocks of sugar produced in the United States and to dispose of them by sale or by distribution to any organization for the relief of the unemployed.

Frazier-Lemke Farm Mortgage Act

(S. 3580, Pub., No. 486) approved June 28, 1934, granting farmers overburdened with debt a moratorium of five years, upon certain conditions, on paying off farm mortgages. Its purpose was to stop foreclosures and speed voluntary conciliation of debts and the refinancing program of the Farm' Credit Administration.

HOUSING

The National Housing Act (H. R. 9620, Pub., No. 479) approved June 27, 1934, was passed to stimulate the capital goods industries and bring about a broad revival of building and home modernization. Loans up to $2,000 to individual home-owners for remodeling and renovating were to be encouraged. Funds for the loans were to come from established, accredited lending agencies (banks, trust companies, building and loan associations, mortgage lending companies). The Home Credit Insurance Corporation was organized by the government to insure the lending agencies to the extent of 20% of the losses they sustained on such loans.

A mutual mortgage insurance fund was created to insure loans on new houses to the full value of the mortgage. Mortgages may be written for as much as 80% of the appraised value of the property. The Act provided that the mortgages should bear interest at not more than 6% to which was added the cost of the premium of loan insurance which should be from ½ of 1% to 1%. The insurance on loans was to pay for losses which might occur and thus remove the government from any possibility of loss. All mortgages so insured must make provision for total amortization within a 20-year period. Amortization provisions must be such as the home-owner could reasonably meet. The maximum mortgage a home builder can secure is $20,000.

In addition the Act provided for the formation of national mortgage associations by private capital. Each such association was to be capitalized at not less than $5,000.000. The function of the associations is to rediscount the paper of agencies making loans on houses. Each association is permitted to sell bonds and other obligations to the extent of ten times the aggregate par value of its outstanding capital stock to private investors. Another feature of the Act was the organization of a Federal Savings & Loan Insurance Corporation, which insures the accounts of Federal savings and loan associations in the same way that the Federal Deposit Insurance Corporation insures the accounts of depositors of banks.

CURRENCY, BANKING AND SECURITIES LEGISLATION

Currency Legislation. — The Gold Reserve Act of 1934 (H. R. 6976, Pub., No. 87), approved Jan. 30, 1934, authorized the President to reduce the gold content of the dollar, directing that its weight should be fixed at not more than 60% of its present weight. Title to all the gold held by the Federal Reserve System was vested in the Federal Government. The Act also provided for a devaluation profit to be taken, and assigned this to the United States Treasury. A stabilization fund was set up with the $2,000,000,000 devaluation profit. The Treasury was empowered to deal in gold, foreign exchange and instrumentalities of credit in order to stabilize the exchange value of the dollar and the price of government securities, and to promote foreign trade. The life of the fund was set at two years except that it might be extended one additional year by Presidential proclamation.

Further coinage of gold was prohibited and all gold owned by the United States was to be formed into bars of such weight and fineness as the Treasury should direct.

A Presidential proclamation issued soon after the Act went into effect defined the dollar as 15 5/21 grains of gold nine-tenths fine, making the value of an ounce of gold $35. This made the dollar worth 59.06% of its former gold value.

The Silver Purchase Act (H. R. 9745, Pub., No. 438) declared it to be the policy of the United States government to increase the proportion of silver to gold in the monetary stocks of the United States until it amounted to one-fourth. The Treasury was authorized to make purchases at home or abroad for this purpose. Issuance of silver certificates against the silver stock was authorized. The President was authorized to require delivery to the United States mints of any or all silver in the country, by whomsoever owned or possessed. The Secretary of the Treasury was given authority, upon approval of the President, to control the acquisition, importation, exportation, and transportation of silver.

Banking. — The Banking Act of 1934 (S. 3025, Pub., No. 362) extended for one year the temporary plan for deposit insurance. Full insurance was provided on deposits up to $5,000 beginning July 1, 1934, instead of on deposits up to $2,500, as was in effect from Jan. 1 to July 1. Partial insurance was provided on deposits in excess of $5,000. The Act also authorized and empowered the R. F. C. to make loans upon or purchase the assets of any bank, savings bank, or trust company which was closed after Dec. 31, 1929 and prior to Jan. 1, 1934, upon such terms and conditions as the R. F. C. might by regulations prescribe. The purpose of this was to secure orderly liquidation of the assets of closed banks and prevent their sale at sacrifice prices in the chaotic markets which characterized the depression.

The R. F. C. was also authorized to lend the F. D. I. C. up to $250,000,000 upon demand, said funds to be used for insurance purposes. The security for such loan or loans was to be the debentures or other obligations of the F. D. I. C.

Securities and Stock Exchange Legislation. — The Securities Exchange Act of 1934 (H. R. 9323, Pub., No. 291) amended the civil liabilities provisions of the Securities Act of 1933, so that officers and directors of corporations need not fear civil or criminal prosecution if they acted in good faith and saw to the accuracy of the corporation's statements. A Securities Exchange Commission of seven members was substituted for the Federal Trade Commission as a regulatory body. The Act subjected the stock exchanges located in the United States to regulatory measures. Credit regulation was given over to the Federal Reserve Board. The intent of the Act is the same as that of the 1933 Act, namely, to keep a firm control upon credit, prevent a wild boom, and to protect the public from purchasing worthless securities.

TARIFF LEGISLATION

The Reciprocal Tariff Act of 1934 (H. R. 8687, Pub., No. 316) authorized the President to negotiate reciprocal trade agreements with other nations to expand foreign trade. To this end, he was authorized to raise or lower tariff rates by not more than 50% by proclamation in return for advantages to our trade. To prevent discrimination and inevitable reprisals therefor, the Act provided that when, by agreement with a country, import rates were changed, the new rates should apply to all countries alike, and not just to one or a few. The President was authorized to negotiate agreements of this nature for three years. Agreements are subject to termination upon six months notice. Before the President may change the tariff rates, he must seek the advice of the Tariff Commission and the Departments of State, Agriculture, and Commerce, and give public notice of intention to negotiate in order that interested parties may present their views.

COMMUNICATIONS REGULATION

Communications Act of 1934 (S. 3285, Pub., No. 416) abolished the Radio Commission, repealed the Radio Act of 1927, took away the authority of the Interstate Commerce Commission and the Postmaster-General over wire and wireless companies, and set up a new regulatory body known as the Federal Communications Commission, with broad powers to regulate all electrical communications. The new Commission has seven members appointed by the President, with power to regulate all interstate and foreign electrical communications services, including telephone, telegraph, cable and radio. The Commission's powers govern such minute matters as expansion of even small services and determination of whether new activities in research are necessary. Powers to investigate and study the business of existing companies and inter-company relationships are also conferred upon the Commission, together with authority to make recommendations to Congress for additional regulatory legislation.

BANKRUPTCY LEGISLATION

Corporate Bankruptcy Act of 1934 (H. R. 5884, Pub., No. 296), provided relief for debtors in the form of corporate reorganization. By its terms, corporations were enabled to reorganize with the consent of the majority of their creditors and with the approval of a Federal Court, notwithstanding a recalcitrant minority. Previously minority lien holders had to be bought out, which made reorganization expensive and often impossible. The petition for reorganization may be filed by a debtor corporation or by any creditor or stockholder if it has been approved by holders of 25% of each class of claims and 10% of the total. However, before any plan of reorganization can be approved, holders of ⅔ of the total claims must consent to the plan.

Municipal Bankruptcy Act of 1934 (H. R. 5950, Pub., No. 251) permitted cities and local taxing units to petition Federal courts for approval of plans to readjust their debts if consented to by holders of 51% of their outstanding obligations. This procedure is allowed for a two-year emergency period. The plan of readjustment may not be approved by a Federal Court until creditors holding ⅔ in amount of each class of claims affected by the plan, and also creditors holding ¾ in amount of all securities had consented to the plan. Congress felt that some legislation was imperative to permit overburdened municipalities to settle their obligations without resort to ruinous tax rates which encourage defaults by taxpayers and tie up city finances.

CRIME LEGISLATION

To combat the rapid growth of kidnap rings, bandit gangs, prison riots and outbreaks, bank robberies and the like, Congress passed a number of acts to bring Federal aid to harassed state authorities. Six acts known as the six Federal Crime Control Acts (Pub., Nos. 230-235) provided severe punishment for the following offenses: (1) transmitting in interstate commerce any threat to injure, kidnap, accuse any person of crime or containing any demand for ransom or reward for the release of a kidnapped person; (2) killing or assaulting Federal officers while engaged in the performance of their duties or on account of the performance of their duties; (3) transporting or aiding or abetting the transporting of any kidnapped person in interstate or foreign commerce, the kidnapped person being harmed, the jury might bring in a death verdict for the kidnapper; (4) fleeing from one state to another for the purpose of avoiding prosecution or testifying in any criminal proceeding; (5) inciting a Federal prison mutiny, riot, escape, or aiding in an escape or smuggling arms or other contraband into Federal penal institutions; (6) robbing or attempting to rob national banking institutions, and additional penalties were provided if the robbery or attempted robbery were accompanied by assault.

In addition, Congress passed the Arrest Facilitation Act (H. R. 9370, Pub., No. 295) to provide rewards for arrest of criminals or information leading to arrest, and the National Stolen Property Act (S. 2845, Pub., No. 246) which extended the provisions of the National Motor Vehicle Theft Act to other stolen property.

EMERGENCY RELIEF

An act (H. R. 7527, Pub., No. 93) approved Feb. 15, 1934, appropriated $950,000,000 more for the FERA. Of this amount, $500,000,000 was allotted to direct relief and $450,000,000 was set aside to finish projects begun by the CWA.

In June, 1934, Congress passed the Emergency Deficiency Act (H. R. 9830, Pub., No. 412) providing, among other things, $525,000,000 to be allocated by the President in the relief of agricultural areas stricken by the drought. Loans were to be made available to farmers for feed, seed, freight, etc.

Congress also passed the Roads Employment Act, providing for increased employment by a road-building program. The act authorized appropriations of $300,000,000 for road work in 1935, $100,000,000 in 1936, and that neither of these grants would have to be matched by the states. However, the $125,000,000 authorized for road work in 1936 and an equal amount in 1937 must be matched by the states. An appropriation of $24,000,000 for each of the next three years was provided for work in forest highways, main roads through public lands, roads and trails in national parks and Indian reservation roads.

MISCELLANEOUS LEGISLATION

The Railway Labor Act (H. R. 9861, Pub., No. 442) created the National Railroad Adjustment Board and the National Mediation Board to prevent strikes, secure freedom of associations among employees and to provide for the prompt and orderly settlement of all disputes concerning rates of pay, rules, or working conditions, and to interpret agreements regarding the same.

Joint Resolution for the Settlement of Labor Disputes (H. J. Res. 375, No. 44) provided that the President should establish a board or boards to investigate issues, facts, practices and activities of employers or employees in controversies arising under section 7a of the National Recovery Act or which are burdening or obstructing or threatening to burden or obstruct interstate commerce. Section 7a of the act was a constant bone of contention the nation over during 1934. The President named a National Labor Relations Board which succeeded the National Labor Board. The year 1934 was marked by numerous strikes.

Railroad Pensions Act (S. 3231, Pub., No. 485) required railroads to set up a retirement and pension system to which both the carriers and their employers were requird to contribute. A lower court quickly declared the act unconstitutional, and the decision was appealed.

Independent Offices Act of 1935 (H. R. 6663, Pub., No. 141) swept aside many of the economies effected by the Economy Act of 1933. Large numbers of "presumptives" were restored to pensions rolls in the Veterans Administration, and the theory of service pensions was reestablished. This added $103,000,000 to the budget for 1935, and $228,000,000 more was added in pay increases for Federal officers and employees and in other expenditures.

FEDERAL ADMINISTRATIVE COMMISSIONS AND EMERGENCY AGENCIES

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The new Federal administrative commissions and emergency agencies have been classified in this review under the following six heads: (1) Loans and insurance; (2) Labor relations; (3) Economic emergency organizations; (4) Coordinating and planning organizations; (5) Other permanent organizations; (6) Other temporary organizations.*

LOANS AND INSURANCE

Commodity Credit Corporation.—Executive Order No. 6340 of Oct. 16, 1933 created this independent unit in support of the policy of the Agricultural Adjustment Act with funds supplied by the Reconstruction Finance Corporation. Loans have been made on cotton and corn direct to the growers. On cotton the amount is 8 to 10 cents a pound, depending on the quality, and on corn 45 cents a bushel. All notes are without recourse to the maker or indorser provided the maker has lived up to the acreage reduction agreement. The rate of interest is 4 per cent.

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* Information is taken largely from L. F Schmeckebier, *New Federal Organizations,* Washington, 1934. Guy S. Claire, *Administocracy,* New York, 1934, and *The United States News* have also been of assistance.

First and Second Export-Import Banks of Washington. — Executive Order No. 6581 of Feb. 2, 1934 created the First Export-Import Bank for the purpose of promoting trade with Russia. Since the Act of April 13, 1934 prohibits financial transactions with any government in default of its obligations to the United States, the bank has made no advances pending the settlement of claims against Russia. Executive Order No. 6638 of March 9, 1934 created the Second Export-Import Bank for the purpose primarily of assisting nationals of the United States to finance export and import transactions with all the countries outside of Russia. So far the interest of the bank appears to have been greatest in promoting trade with Cuba and Brazil. The rate of interest is 4¾ to 5 per cent, depending upon whether it is a short or long-term credit. Both banks have the same persons on their governing boards, and the funds of both are presumably supplied by the Reconstruction Finance Corporation. The avowed purpose of both banks is to supplement rather than to compete with existing sources of export and import credit.

Farm Credit Administration.—By the Act of March 3, 1933, the President was authorized to reorganize the executive agencies. Accordingly, he issued Executive Order No. 6084 on March 27, 1933 placing under one organization the following 11 agencies: Federal Land Banks, Joint Stock Land Banks, Federal Intermediate Credit Banks, Office of Farm Loan Commissioner, National Farm Loan Associations, Federal Farm Mortgage Corporation, Regional Agricultural Credit Corporations, Central Bank for Cooperatives, Regional Banks for Cooperatives, Production Credit Corporations, and Federal Credit Unions. The President transferred from the Department of Agriculture the Crop Loan Production Office and the Seed Loan Office. The Federal Farm Board was abolished and its chairman became the Governor of the Farm Credit Administration. The price stabilization operations authorized by the Agricultural Marketing Act of June 15, 1929 have been discontinued with the result that the Grain Stabilization Corporation and the Cotton Stabilization Corporation are in process of liquidation. The joint stock land banks are also in process of liquidation.

The Farm Credit Administration supervises the national farm loan associations through which loans are made to the farmers. The stockholders are limited to borrowers. There are approximately 5,000 of these associations. The Farm Credit Administration organized the Central Bank for Cooperatives at Washington with 12 regional banks for cooperatives. The cooperatives own stock in the Central Bank and in the regional bank. These banks make loans to cooperative associations only. Local production credit associations, of which there are more than 300, are organized by farmer borrowers and are chartered by the Governor of the Farm Credit Administration. The purpose is to render credit available to farmers for repairs and improvements and to stockmen for feed. Agricultural credit unions were authorized by an act of June 26, 1934 and placed under the control of the Governor of the Farm Credit Administration. These credit unions will sell shares of $5 par value and will lend on personal security for a term not exceeding two years and interest not exceeding 1 per cent a month. This agency of the government has the aspects of being a permanent organization. The annual report of the Farm Credit Administration will give details of organization.

Federal Deposit Insurance Corporation. — The Banking Act of 1933 created the Federal Deposit Insurance Corporation with $150,000,000 in capital stock held by the United

States. Every national bank and every state bank that is a member of the Federal Reserve System must buy stock equal to one-half per cent of its total deposit liabilities. By the original act each Federal Reserve Bank had to buy stock equal to one-half its surplus, but the Act of June 19, 1934 provided that the Secretary of the Treasury should pay to each bank the amount of its subscription so that a Federal Reserve Bank might make loans to industry, provided the bank guaranteed payment of at least 2 per cent. Up to July 1, 1935 the insurance is limited to $2,500 for any one deposit; thereafter the insurance will cover deposits up to $10,000; 75 per cent of the deposit between $10,000 and $50,000, and 50 per cent for the part of the deposit above $50,000. The corporation may issue debentures up to three times its capital of which the Reconstruction Finance Corporation is directed to buy not more than $250,000,000.

The Federal Home Loan Bank Board.—The Act of June 22, 1932 created this Board, which has authorized 12 Federal home loan banks in as many districts. The purpose is to lend to building associations and savings banks with assignment of mortgages on homes and stock held by the borrowing corporation as security. The board fixes the capital of each bank with the approval of the Secretary of the Treasury; the minimum is $5,000,000. The Secretary of the Treasury is authorized to subscribe for $125,000,000 in stock and has subscribed for substantially that amount. The amount subscribed by the building associations and similar institutions is approximately $20,000,000. The dividend rate is 2 per cent. By the National Housing Act of June 27, 1934 the Board was authorized to issue bonds which are the joint and several obligations of all the home loan banks. The cost of the supervision exercised by the Federal Home Loan Bank Board is prorated among the constituent organizations.

The Federal Home Loan Bank Board created in 1933 the Home Owners Loan Corporation with a capital stock of $200,000,000 and the power to issue bonds up to $2,000,000,000. By the National Housing Act of June 27, 1934 the issue of a total amount of $3,000,000,000 in bonds was authorized, the principal and interest guaranteed by the Government. The purpose of the corporation is to protect small home owners from foreclosure by lending to replace existing mortgages and to pay taxes and to provide funds for repairs. The field organization is along state lines. The Federal Home Loan Bank Board supervises and examines the Federal savings and loan associations which are similar in functions to those chartered by the states. The Secretary of the Treasury is authorized to expend $100,000,000 for preferred stock in these associations. Approximately 500 such associations have been chartered. The Board acts as trustee of the Federal Savings and Loan Insurance Corporation which insures accounts in building and loan associations, homestead associations and cooperative banks. The limit of insurance is $5,000 for any investor.

Federal Housing Administration.—This agency was created by the National Housing Act of June 27, 1934 for insuring loans and mortgages. It has no relationship to the construction of houses. The rate is one-half to one per cent a year. In case of default the mortgage will convey the property to the administrator. The Reconstruction Finance Corporation furnishes the initial allocation of $10,000,000 as a revolving insurance fund. The Federal Housing Administrator is authorized to approve the incorporation of national mortgage associations for the purchase and sale of first mortgages and for the sale of bonds for the purpose of raising money. The capital stock of each association is at least $5,000,000.

Reconstruction Finance Corporation.—This agency was created by the Act of Jan. 22, 1932 but Congress has made numerous amendments up to and including the present year. It is to continue for ten years. The capital stock is $500,000,000 with authority to issue notes for $4,075,000,000 plus amounts used for purchasing preferred stock and debentures of banks and trust companies. The United States guarantees the principal and interest. The corporation has loaned large sums to government and non-government agencies. Among the former are the Federal Emergency Relief Administration, Federal home loan banks, the Home Owners' Loan Corporation, the various agencies under the Farm Credit Administration, and states and territories. Among the non-government agencies are banks, building and loan associations, insurance companies, railroads, and drainage districts. A statement of loans may be obtained from the quarterly report of the corporation.

LABOR RELATIONS

National Labor Relations Board.—On June 29, 1934, Executive Order No. 6763 abolished the National Labor Board and created the National Labor Relations Board composed of three members. It has original jurisdiction over controversies arising under Section 7(a) of the National Recovery Act relating to collective bargaining, freedom to join unions, maximum hours, minimum wages or to burdening or obstructing the free flow of interstate commerce. The Board can recommend change in status and hear appeals from boards established under codes of the National Recovery Administration.

National Longshoremen's Labor Board was established June 26, 1934 by Executive Order No. 6748 for the purpose of dealing with the longshoremen's strike on the Pacific Coast.

The National Mediation Board of three members created by the Act of June 21, 1934 takes the place of the Board of Mediation of five members. The Board may offer its services in any labor emergency.

National Railroad Adjustment Board.—This Board consists of 36 members, 18 selected by the carriers and 18 by the labor organizations. It has jurisdiction over disputes arising out of agreements concerning rates of pay, rules, or working conditions on the railroads. The members have no prescribed term of office. They are not appointed by or responsible to the President. They receive no compensation from the United States. The employees are, however, paid by the National Mediation Board.

National Steel Labor Relations Board.—This Board exists at the will of the President for the purpose of investigating charges of interference or coercion in connection with the selection of representatives of company unions or of regular unions. They may even conduct elections of employee representatives.

Railroad Retirement Board.—The Railroad Retirement Act of June 27, 1934, which created this Board, has been declared unconstitutional by the Supreme Court of the District of Columbia and the case awaits a hearing before the Supreme Court of the United States.

United States Employment Service.—The Act of Sept. 6, 1933 abolished the existing employment service and created a new organization with the same name as a bureau in the Department of Labor. The President appoints the Director with the consent of the Senate, who has in charge the development of a national system of employment offices in cooperation with state employment offices or the establishment of Federal employment offices in states which do not care to become affiliated.

ECONOMIC EMERGENCY ORGANIZATIONS

Agricultural Adjustment Administration.—By the Act of May 12, 1933 the Secretary of Agriculture was empowered to establish this agency, appoint the administrator and all other personnel. Congress declared the policy to be to establish and maintain a balance between the production and consumption of agricultural commodities. The base period for the purchasing power of all agricultural commodities except tobacco shall be August, 1909 to July, 1914. For tobacco it shall be August, 1919 to July, 1929. A part of the policy, too, was that the consumer's interest was to be protected.

The price parity is to be attained by reducing production through restriction of acreage, marketing agreements, and purchasing of surplus commodities and removing them from the market. The commodities included are wheat, cotton, corn, hogs, rice, tobacco, milk and its products, cattle, peanuts, rye, flax, barley, grain sorghums, sugar beets and sugar cane. Except for cotton and tobacco the control is based on voluntary agreements. In order to provide the money to pay the producers for their curtailments of products the Secretary of Agriculture was authorized to levy processing taxes on wheat, cotton, tobacco, corn, hogs, and sugar. Compensating taxes have been levied on raw sugar, jute fabric, and paper bags, towels and tape.

Federal Emergency Administration of Public Works.—The funds came from an appropriation of $3,300,000,000 made June 16, 1934 for the purpose of encouraging national industrial recovery. The director lends money for construction of improvements for national parks and forests, highways, the Navy Department, and for the railroads. He lends also to the Public Works Emergency Housing Corporation which develops housing projects in the cities and forms the only construction undertaken by the Public Works Administration. The administrator established the National Planning Board on July 30, 1933 for the preparation of a comprehensive program of public works. A month later he established the Mississippi Valley Committee covering research and planning in the fields of erosion, forestation, flood control, navigation, and power.

Federal Emergency Conservation Work.—The administration of the act of March 31, 1933 is placed with the President who has appointed a director and an advisory council. The force recruited by the director is known as the Civilian Conservation Corps. The purpose is to provide work of a public nature for unemployed citizens in connection with forestation, national parks, and control of plant pests and diseases. Unmarried men between ages of 18 and 25 and veterans not subject to age limit were enrolled and placed in camps, paid $30 a month and given clothing, food, housing, and medical care. An educational program was also planned and executed. The President's authority under the Act of Congress lapses March 31, 1935.

Federal Emergency Relief Administration.—The relief of destitution is the objective. Accordingly, nonrecoverable grants have been made to the states, territories and the District of Columbia. Allowances have been made by the director for a large educational program including aid to college students, maintenance of rural schools, and adult vocational training. Submarginal farms have been purchased by the Land Division and placed under various projects for public use. The Civil Works Administration carries into effect the civil works program. The Surplus Relief Corporation purchases, processes, and distributes the surplus agricultural products. The Act of Congress expires May 12, 1935.

National Recovery Administration.—The Act of Congress of June 16, 1933 authorized the President to establish this agency. It expires within two years. The purpose has been to stimulate industrial recovery through maximum working hours, minimum rates of wages, and the elimination of child labor. These objectives have been embodied in a series of codes for specific industries. These codes recognize collective bargaining for employees and the prevention of unfair competition between producers. Each industry has a national code authority composed of representatives of the industry and one or more government representatives. The expense of the administration is assessed against the members of the industry. The Industrial Emergency Committee, created Sept. 27, 1934, is the policy-making body of the NRA.

Office of Federal Coordinator of Transportation.—The duties of this officer have been extended to June 16, 1935. He prepares plans for the elimination of unnecessary duplication of services, the avoidance of wastes, and improving conditions of transportation in all its forms. He has divided the carriers into three groups—eastern, western, and southern—and directed each group to form a coordinating committee. He has made recommendations for lower salaries of railway executives and assisted in the lowering of prices on steel rails. He has published at least three valuable reports, Regulation of Railroads, Merchandise Traffic Report, and one on motor, water and air transportation. The expenses of the office, except the salary of the Coordinator as a member of the Interstate Commerce Commission, are assessed upon the railroads.

Petroleum Administration. — The President appointed the Secretary of the Interior as Administrator who in turn created the Petroleum Administrative Board of the Department of the Interior which is the code authority for the industry except in labor matters. This Board has allocated production quotas for each state and left to state bodies the distribution of quotas to the producers. Exception is made for California and Michigan where the allocation is made direct to the producers by the Department of the Interior.

Federal Subsistence Homestead Corporation.—All of the stock in the corporation is held in trust by the Secretary of the Interior. A revolving fund of $25,000,000 was authorized by the Act of June 16, 1933 to aid the distribution of population in industrial centers. The plan is designed to extend over a period of 20 years and to comprise groups of 25 to 100 homesteads, each homestead to have about 5 acres. The homesteads will be sold to individuals on long term easy payments; the rate of interest is 4 per cent.

COORDINATING AND PLANNING ORGANIZATIONS

Central Statistical Board.—Executive Order No. 6225, July 27, 1933, created this Board to coordinate the statistical services incident to the Recovery Act.

Committee for Reciprocity Information.—Executive Order No. 6750, June 27, 1934 created for a period of three years this committee to receive in behalf of the President the views of any interested person on any proposed trade agreement with a foreign government which may modify existing duties to the extent of 50 per cent.

Committee on Economic Security. —Created by Executive Order No. 6757, June 29, 1934 for the investigation of problems relating to the economic security of individuals. Subordinated to this committee are the Technical Board on Economic Security and the Advisory Council on Economic Security.

Committee on National Land Problems. — Executive Order No. 6693, April 28, 1934, created this committee to make a comprehensive survey for improving practices in land utilization, better balancing of agricultural production, and developing a national land program.

Executive Council.—Executive Order No. 6202A created this Council composed of the heads of the departments and the heads of the new organizations for the coordination of inter-agency problems. It has no plenary powers but effects coordination, no doubt, through the exchange of views.

Federal Alcohol Control Administration.—Executive Order No. 6474, Dec. 4, 1933, created this organ. It makes plans for the coordination of the activities of the government pertaining to taxation and control of alcohol and alcoholic beverages and may prescribe regulations with respect to any code affecting the industry. This body is superior to the code authority for any of the groups concerned. It has considerable control over wholesale prices, but it has left the control over retail prices to the state authorities. It is due to expire June 16, 1935.

Industrial Emergency Committee. —Created by Executive Order No. 6770, June 30, 1934. Donald R. Richberg is the Director. He is to make recommendations to the President concerning relief, public works, labor disputes, and industrial recovery.

National Emergency Council. — Executive Order No. 6433A, Nov. 7, 1933, created this Council to make more efficient and productive the work of the numerous field agencies carrying into effect the NIRA, the AAA, and FERA. In Washington the

Council furnishes assistance to enquirers through the United States Information Service.

National Recovery Review Board.—Established for the purpose of hearing complaints from small business men about the operation of NRA and of reporting its findings to the President. The reports have been made public in mimeographed releases. The Board was created by executive order March 7, 1934, and was discontinued by executive order June 30, 1934.

National Resources Board.—Created by Executive Order No. 6777, June 30, 1934, to prepare a plan of procedure dealing with physical, social, governmental and economic aspects of public policies for the development and use of land, water and other national resources. It replaced the Committee on National Land Problems and the National Planning Board of the Federal Emergency Administration of Public Works.

Office of the Special Adviser on Foreign Trade.—Created by Executive Order No. 6651, March 23, 1934, to keep the President informed on foreign trade, to negotiate with corporations and individuals interested in obtaining assistance through financing transactions, barter, or other forms of governmental participation, and bring proposals before the proper departments or agencies. The adviser has issued one publication containing an international balance sheet from 1896 to 1933.

Quetico - Superior Committee. — Created by Executive Order No. 6783, June 30, 1934 to consult and advise with the Federal agencies concerned and with the State of Minnesota for the withdrawal of lands in northern Minnesota to establish a memorial to the soldiers who served in the World War.

Science Advisory Board.—Created by Executive Order No. 6238, July 31, 1933, to act through the machinery and under the jurisdiction of the National Academy of Sciences and the National Research Council for the appointment of committees to deal with specific problems. Eight such committees have been appointed: Weather Bureau, Geological Survey and Bureau of Mines, War and Navy Departments, Land Classification, Scientific Study of Human Problems, Policy of the Government in Relation to Scientific Research, Railway Research, and Bureau of Standards.

OTHER PERMANENT ORGANIZATIONS

Federal Communications Commission.—The Act of June 19, 1934 created this Commission replacing the Federal Radio Commission in connection with control over wireless, taking over the power of the Interstate Commerce Commission to require reports from the telephone and telegraph companies and also the power of the Postmaster General to fix the rates on government messages. The Communications Commission can prescribe reasonable rates, authorize interlocking directorates, evaluate property, require extension of lines, determine depreciation charges, and inquire into the management of the companies. It has also power over licensing and the operating of radio stations.

Federal Prison Industries.—This is a corporation in the District of Columbia authorized by the Act of June 23, 1934 to determine the manner and extent of industrial operations to be carried on in Federal penal and correctional institutions. No single private industry is to be forced to bear undue competition from products of prison workshops.

Foreign Trade Zone Board.—Free zones were authorized by the Act of June 18, 1934, permitting the storing, repacking, and crating of foreign merchandise, but not its manufacture, without payment of duty. The Board has the power to establish and supervise these free zones.

National Archives Establishment.—The Archivist has been appointed but the building will not be ready for occupancy until July 1, 1934. Consequently the establishment will not begin to function until that time. The National Archives Council will define the classes of material to be transferred to the National Archives Building. The National Historical Publications Commission is to make plans for the publication of historical works and collections of sources.

Securities and Exchange Commission.—Created by the Act of June 6, 1934, which took away from the Federal Trade Commission the power over the issuance of securities and conferred the additional power of regulating stock exchanges. Stocks and bonds must be registered with the Commission before they can be sold in interstate commerce or through the mails. The Commission may register exchanges and suspend registration, make regulations to prevent the manipulation of security prices and to govern the functions of members of exchanges, brokers, and dealers. The Federal Reserve Board regulates the amount that may be borrowed on any security, including margin requirements.

The Corporation of Foreign Bondholders has been authorized (48 Stat. 92) but not yet created. The Foreign Bondholders Protective Council, a private organization, is meanwhile carrying on the work intended for the corporation.

Tennessee Valley Authority.—Subordinated to it are the Electric Home and Farm Authority, Inc., and the Tennessee Valley Associated Cooperatives, Inc. The region embraces the drainage basin of the Tennessee River, about 40,000 square miles, located in Tennessee, Mississippi, Alabama, Georgia, North Carolina, Virginia, and Kentucky. The Authority has dams, power and nitrate plants construction completed or in process of construction under its control. Plans are being made for reforestation and for better use of marginal lands. The Tennessee Valley Authority holds in trust the capital stock of $1,000,000 of the Electric Home and Farm Authority for the purpose of making loans on approved electric appliances sold through authorized dealers. Another corporation controlled by the authority is the Tennessee Valley Associated Cooperatives for lending funds to local cooperatives and for making outright donations. They furnish also a consulting service.

OTHER TEMPORARY COMMISSIONS

District of Columbia - Virginia Boundary Commission.—Created by the Act of March 21, 1934, to locate and mark the boundary line between the District of Columbia and Virginia and to investigate questions of title to land claimed by private citizens.

Thomas Jefferson Memorial Commission.—Created by Joint Resolution of June 26, 1934 to formulate plans for constructing a permanent memorial to Jefferson in the District of Columbia. No appropriation has been made. The Commission may accept donations.

United States Territorial Expansion Memorial Commission.—Created by Joint Resolution of June 15, 1934 to formulate plans for a memorial to Jefferson, Livingston and Monroe, Lewis and Clark, and others who contributed to territorial expansion of the United States. This Commission may accept funds.

THE SUPREME COURT AND CONSTITUTIONAL LAW

By Thomas Reed Powell

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DELAY IN ADJUDICATION OF NEW DEAL LEGISLATION

Nothwithstanding the unprecedented flood of legislation passed by Congress in 1932 and 1933, and the extensive administrative regulations and orders issued to carry out the general policies announced in such legislation, none of the underlying constitutional issues involved in such novel exertions of national power came before the Supreme Court for adjudication in the term of court beginning in October, 1933, and ending in June, 1934. If Congress and the Administration have exceeded their constitutional powers, they have in fact for nearly two years been securing obedience in multitudinous instances for which there can be no redress. Whatever may ultimately turn out to be the constitutional law in books, the constitutional law in action may fail to correspond with it. Judicial negatives may curb future action without greatly upsetting what has been done already. No record of the work of the Supreme Court during 1934, would be complete unless stress were laid on the work it failed to do because no opportunity made it possible to do it.

MINNESOTA MORTGAGE MORATORIUM

Of the cases decided during the year, by far the most important are the two five-to-four decisions sustaining the Minnesota Mortgage Moratorium and the New York milk laws. In both cases the majority consisted of Mr. Chief Justice Hughes and Justices Brandeis, Stone, Roberts and Cardozo, and the dissenters were Justices Van Devanter, McReynolds, Sutherland and Butler. With these cases should be contrasted Worthen Co. *v.* Thomas (292 U.S. 426) which unanimously declared unconstitutional an Arkansas statute in so far as it exempted the proceeds of life insurance policies from attachment for debts created prior to its enactment. In the case at bar the debt had been reduced to judgment before the enactment of the statute, but the court held that the judgment, though not itself a contract, was an essential means of enforcing contracts and that the impairment of pre-existing rights on the judgment was an impairment of rights under the contract. The four dissentients in the two preceding cases concurred in a special opinion in this case, which refused to accept the opinion of the Chief Justice that the Minnesota Mortgage Moratorium Law presented a different issue.

To the majority the difference was that the Arkansas statute was unqaulified in operation and unlimited in time and so not to be justified by reason of special state power in emergencies. This difference was the justification for not regarding the Minnesota Mortgage Case as a precedent. The four concurring Justices stated that they were ''of opinion that the two statutes are governed by the same principles, and the differences found to exist are without significance so far as the question of constitutionality is concerned.'' This would mean that, if respect were to be given to the doctrine of *stare decisis*, the Arkansas insurance statute should be sustained, since the undistinguishable Minnesota statute had been upheld. Such, however, was not the view of the four objecting members of the court. They were indulging in an *ex post facto* lament that their colleagues had not joined with them to annul the Minnesota statute as well. The incident is significant as an illustration of the fact that previous decisions are not regarded as authoritative by justices who did not concur in them. This makes constitutional law even more amorphous than it would otherwise be and drives us to the conclusion that the determining factor in its development is the constitution of the bench before which issues come.

The Minnesota statute sustained in Home Bldg. & L. Assn. *v.* Blaisdell (290 U.S. 398) was to be in force only during the existing emergency and in no event beyond May 1, 1935. It authorized the district judge during that period to extend the period of redemption from foreclosure sales on condition that the mortgagor pay all or a reasonable part of the rental value of the property for taxes, insurance, interest and mortgage indebtedness as the court might direct. There was a further provision against deficiency judgments during the period. Such a statute, if prospective only, would clearly be within the police power. The question in the case was whether its retroactive application impaired the obligation of contracts. All the court agreed that the fact that the statute related only to the remedy does not necessarily save it from condemnation. The point to be established by the majority was that such a reasonable and restricted alteration of the remedy in time of wide-spread economic collapse is part of the reserved ''protective power'' of the state and, therefore, part of the law entering into the obligation of the contract at the time of its inception.

The establishment of this point depended in the last analysis upon its assertion as a matter of judgment and upon invocation of the authority of the cases sanctioning the regulation of rents during an emergency even as applied to the alteration of existing agreements. Of the Rent Cases the dissenting opinion said only: "I do not stop to consider the distinctions between them and the present case or to do more than point out that the question of contract impairment received little, if any, more than casual consideration." This seems the part of wisdom, since the Rent Regulation statute operated directly upon the terms of the agreement itself and was much more than a qualified postponement of judicial remedies. The contract question was explicitly raised in the case and had been treated somewhat at length in the New York court. It is true that the Supreme Court opinion passed over it briefly, but it asserted the power of the state to do what it did to existing contracts and the issue was squarely and explicitly adjudicated.

There was then nothing now in the Mortgage Moratorium Case except the question of degree. The minority did not discuss the fairness of the arrangement from a general public standpoint but took the ground that the denial of the remedy effects a material and injurious change in the obligation, and that such is forbidden by the contract clause without qualification by reason of exceptional circumstances. The provision was introduced into the Constitution to prevent such emergency stay laws as the states had been passing and therefore "with due regard for the processes of logical thinking, it legitimately cannot be urged that conditions which produced the rule may now be invoked to destroy it." The statute in question, say the minority, is not one which forbids acts contemplated by the contract and, therefore, frustrates its performance as do statutes forbidding the sale of liquor which are to be anticipated as possible when the contract is entered into. Here performance is not forbidden. It is merely postponed if one of the parties so desires. Therefore, the statute lacks the justification accorded to those police measures which prohibit conduct which had been promised before the ban had been imposed.

NEW YORK MILK STATUTE

The New York Milk Statute sustained by a five-to-four vote in Nebbia *v.* New York (291 U.S. 502) authorized a board to fix the minimum and maximum retail prices to be charged by retailers. Nebbia was indicted for selling for less than the prescribed minimum. For the majority Mr. Justice Roberts reviewed the situation of the milk industry in New York and found that the order was not "unreasonable or arbitrary, or without relation to the purpose to prevent ruthless competition from destroying the wholesale price structure on which the farmer depends for a livelihood, and the community for an assured supply of milk." Assurance of a continuous supply of milk for domestic consumption demands surplus production. The big distributors pay one price for the milk that goes to family consumption and a lower price for the surplus milk that goes to cheese and other products. If smaller distributors can buy at what is called "blended prices" and sell at such price as they please, they can bring down the price which the farmer gets for consumers' milk and bring chaos and perhaps ruin to the industry. Hence the necessity of price fixing in order to preserve the existing arrangement.

After thus justifying the regulation on practical grounds, Mr. Justice Roberts takes up the contention that price-regulation is *per se* unconstitutional except as applied to businesses "affected with a public interest." This has been in recent years the dogma of a majority of the court, strongly contested by the minority. The minority now becomes a majority. The real test, says Mr. Justice Roberts, has always been whether the practical situation was such that competition did not afford adequate safeguards against undesirable or inequitable prices. "The phrase 'affected with a public interest' can, in the nature of things, mean no more than that an industry, for adequate reason, is subject to control for the public good." This abandons the circular nonsense and false history of the previous majority formulation and places the issue on realistic grounds. It does not, however, necessarily indicate any abandonment of previous decisions which have forbidden price fixing. The new majority analysis permits the same difference in practical results as did the old. Yet psychologically it denies that price fixing in general is peculiarly offensive or impious, and invites extensions of legislative authority to fields that the older doctrine would more clearly put beyond the pale.

Support for this inference may be found in the minority view that the argument of the majority would support general prescription of prices "for all the necessities of modern civilization, as well as labor, when some legislature finds and declares such action advisable and for the public good." The minority evidently find cautions in the former view which they assume to be abandoned by its rejection. They insist, also, that courts must inquire into the wisdom of the statute and they pronounce this one to be foolish. "Demand at low prices being wholly insufficient, the proposed plan is to raise and fix higher maximum prices at stores and thereby aid the producer whose prices and output remain unrestrained!" To the person with less than nine cents the statute says: "You cannot procure a quart of milk from the grocer although he is anxious to accept what you can pay and the demands of your household are urgent!" The minority analysis of the practicalities neglects the existing arrangements of the two prices paid by the large distributors and thus finds folly more prevalent than did the legislature or the farmers. While the majority did not invoke the doctrine of emergency, the minority attack the use of the doctrine by the New York Court of Appeals.

In view of the vehemence of Mr. Justice McReynolds's dissent, it is surprising to find the court unanimous in Hegeman Farms Corporation *v.* Baldwin (293 U.S. ——) which sustained a minimum price fixed for retail milk as against the complaint of a dealer that he would be forced out of business at that price. The assumption in the case was that the spread between the purchasing and the selling price was large enough to enable some competitors to stay in business but was too small for the complainant to survive. He wished, therefore, to be able to buy for less or to have his competitors required to sell for more. He learned from Mr. Justice Cardozo that, for all that appears, his predicament was due to his inefficiency as compared with his competitors. The significant point in the case is that, in permissible price-fixing outside the public utility field, an enterprise cannot necessarily object because it receives less than a fair return on the fair value of its property. There were questions as to the adequacy of the allegations in the bill and the failure to seek administrative relief which may have moved the Nebbia dissenters to concur here. Mr. Justice Sutherland confined his concurrence to the result.

THE CONSTITUTIONAL LAW OUTLOOK

The temper of the majority in these cases on milk and mortgages was widely hailed as presaging the attitude of the court on various features of the legislative and administrative program of the National Government. Nevertheless the court has in the present term by a vote of eight to one declared unconstitutional the uncontrolled delegation to the President of power to forbid the interstate transportation of oil produced in violation of state law. Issues of administrative powers and issues of the scope of national power in general are from a technical standpoint quite different from those adjudicated in the milk and mortgage cases. Comparison is possible only from the psychological standpoint of judicial tolerance or intolerance toward legislative novelties in time of national infelicity. Important as such factors are in the making of constitutional law, they do not operate equally in all fields. Already the court has shown that it does not propose to abdicate the obstructive rôle it has hitherto assumed. It would be a rash man who on the basis of the decisions of the past term would venture to prophesy with confidence what constitutional law will be made in the present term and the next.

THE AFTERMATH OF PROHIBITION REPEAL

By John F. Sly and Julius M. Cohen

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STATE SYSTEMS OF LIQUOR CONTROL

Decentralization. — December 5, 1933 was the official end of a costly and ineffectual experiment in national liquor control. In sharp contrast to the prevailing notion of centralized control there has appeared a myriad of systems, detached from any idea of national allegiance and varying as widely in ends and means as decentralization will permit. It strikes a strange note in the midst of a regime that is thrusting aside territorial lines and giving vent to an ever-increasing national service. When repeal went into effect, 28 states were "dry," 11 by constitutional provision, and 17 by statute. Liquor is now legal in 30 states and the District of Columbia.

Tendencies and Variations.—The extremes of control vary from the "wide-open" saloon system of Nevada, to the strict "dry" approach of Arkansas, Georgia, and Kansas. The general tendency, however, is clearly away from the rigidity of prohibition. Even in the technically "dry" states, the repressed desire of repeal has found expression in an odd medley of legal provisions. Kentucky's expression appeared in the form of a "medicinal liquor" law which permits the sale of wines and liquor without a medical prescription. The consumer is permitted to "prescribe" a quantity of liquor for himself if he deems it beneficial to his health. In Arkansas, home brew for personal use was legalized, and in West Virginia, prior to the passage of the repeal amendment, permission was extended to import bonded liquor into the state for home consumption, contrary, incidentally, to the original intent of the Webb-Kenyon act. Some states have stretched the definition of "intoxicating" beverages by either adding to the alcoholic content or permitting the meaning of the term to be determined as a question of "fact" by a jury. Others, like Oregon, provide for local option, and force the dry sections to adhere indirectly to the wet sentiment under threat of withholding needed appropriations.

Restrictions under State Ownership and License Plans.—Of the states that permit legal liquor, 12 provide for a plan of government ownership, while the remainder either operate under the license plan, or are devoid of any regulation at all. Although restricted use of alcoholic liquors generally accompanies a system of state ownership, in several cases, the license system has proved more restrictive. In Pennsylvania, Ohio, Michigan, and Delaware, which operate under the former system, the sale of all kinds of alcoholic liquors by the drink is permitted, while under the license plan, California, Colorado, and Indiana permit only the consumption of beer and wine on the premises where the beverages are sold. Much opposition to such restrictive licensing has sprung from large hotel and restaurant interests who find it none too encouraging for their business. In California, these interests were powerful enough to erase, by process of "initiative", the face of a strict constitutional provision, limiting on-premise consumption.

Limitation of Consumption. — In

the midst of the complexities in the methods of liquor control there appears a strain of uniformity in the desire to promote temperance by limiting consumption. This has been manifested in numerous ways, such as provisions for local option, regulation of excessive advertising; eliminating purchase on credit; prohibition of ''tied-houses'' through the use of interlocking subsidies; prevention of solicitation of orders for liquors, and express provisions outlawing saloons, on-premise consumption, etc. Minnesota, following the theory of ''education first'' provides that the state department of education shall prepare a public school course of instruction describing the effects of alcohol on the human system. Attacking the temperance problem from the standpoint of supply, the Virginia liquor control law empowers the state administrative board to operate its own distillery, while the Oregon commission has been authorized to establish a rectifying plant. Delaware even provides that the state commission may bottle and blend liquors.

Measures to Eliminate Politics.—Another strain of uniformity is seen in the desire to eliminate politics from any of the phases of liquor control. Thus in some states, there is the provision that the election of members to the administrative unit of control shall not take place during the election of other public officials. Pennsylvania selects its officials on a plan that smacks of the ''civil service'' approach. Illinois and Oregon outlaw any contributions by licensees to campaign funds.

FEDERAL INFLUENCE IN LIQUOR CONTROL

Regulations.—Despite the fact that the individual states command the focal point in the administration of liquor control laws, the Federal Government must not be shunted out of the picture. The regulative force that it still maintains influences in no little degree the activities of the states in their efforts to cope with the problems. Its functions are four-fold: (1) regulating and taxing importations, (2) taxing liquors, (3) preventing the transportation or importation into any state that maintains ''dry'' regulations, and (4) regulating the liquor business through the Federal Alcoholic Control Administration, commonly known as the FACA. The effect of high import duties and taxation upon the price of liquor cannot be overlooked, especially in its reaction to the bootleg trade. High taxes mean higher prices for liquor, and a correspondingly greater field for the illicit manufacture and sale of liquor.

Excise Taxes and Import Duties.—To enumerate the types of Federal taxes localized around the nucleus of the liquor business is to intensify the effect of Federal influence. Excise taxes have been placed and collected upon imports and exports of wines and distilled spirits. Special taxes on liquor occupations, on fortifying brandy, stamp taxes on liquor bottled in bond, on containers, floor taxes, and fermented malt liquor taxes,—all give further evidence of Federal interest. Low import duties mean a greater supply, with a probable lowering of price. There has been much agitation for low Federal excise taxes and import duties. Recently, a bill was introduced in Congress to lower the Federal liquor tax from $2.00 to $1.10 per gallon.

FACA Codes.—The FACA, a Federal administrative unit created under the National Recovery Act, is dependent upon the national industrial codes for its power. Wholesalers and winegrowers have given the FACA an authority to issue licensing permits, and price schedules as a direct means of controlling production. For violations of code stipulations, the FACA can resort to ordinary prosecutions at law if it does not wish to employ the more stringent device of license revocation, but it will act only in matters over which the states themselves have no control.

Enforcement. — From the standpoint of Federal enforcement, the Alcoholic Beverage Unit of the Department of Justice has been created to enforce the Federal liquor laws in dry states and to aid in the collection of liquor taxes.

Distillation in Virgin Islands.—

Another interesting version of the Federal interest in the liquor problem is the creation of government-financed distilleries in the Virgin Islands, once the center of the illicit rum-running trade. The products are now legally shipped into the states and sold on a parity with privately produced goods. States are watching this experiment very closely as a further link in the concept of a "business affected with a public interest."

BOOTLEGGING PROBLEM

Tax and License Factors.—The results of the enforcement methods present many uncertainties. One thing is clear, however, and that is the undying prevalence of the bootlegger and his products. A recent pronouncement by the chairman of the FACA that the bootleg industry exceeds the legal liquor business bears out the warning of those who had foreseen the disadvantages of excessive taxation, license charges, and the element of private profit in the liquor business. The bootlegger has no competition in a field in which public officials seize upon liquor control as an easy revenue-raising device. Virginia is one of the few states that has promptly refused to levy any excise taxes upon beverages of high alcoholic content. From the standpoint of license fees, it is possible for a California distiller to make anything including beer, for only $61 in state charges. A sharp contrast is in the case of New York where complete liquor-making privileges total to a cost of $17,500.

Labelling and Stamping.—A more direct method employed by governmental agencies to cope with the bootleg problem is the system of requiring bottles to bear a certain label, indicating the contents, degree of purity, name of the manufacturer, etc. Some states have even required the use of stamps. This has resulted in a somewhat improved quality of liquor, but it is generally conceded that bootleggers have no great difficulty in procuring such stamps and labels. Many suggestions have been forwarded which embody the plan of making mandatory the breaking of liquor bottles immediately following consumption. An off-shoot of such a proposal has been the plan of placing a quarter in the bottom of each bottle in the manufacturing process, and requiring the consumer to break the bottle in order to secure the coin for which he was originally charged.

PRODUCTION AND CONSUMPTION OF HARD LIQUOR

Excess of Supply.—Contrary to the prevailing notion, the supply of hard liquor has greatly exceeded consumption. In fact, overproduction is forcing in storage about two gallons for every one gallon withdrawn for consumption. This is corroborated by the fact that revenue derived from liquor has generally been far short of expectations. To those who predicted that the repeal of the Eighteenth Amendment will result in a scourge of excessive drinking, it is needless to point out that such a scourge has not yet materialized. As one commentator remarked, "The cocktail is everywhere under competition from milder aperitifs, and there is so little call for strong beer that most of the brewers are holding their alcoholic content at 3.6 per cent."[7] Seemingly, the wet states are more sober than they were before 1920, and most of the heavy drinking is going on in dry states, which comprise a great minority. Arkansas, for instance, is one of the states that voted dry and is reported to drink wet, because of the predominance of smuggling from the wet border neighbors.

The Saloon.—One of the pivotal arguments of the anti-repeal group was the dread of the return of the much criticized institution, the saloon. It is true that most of the states have specific provisions in statutes and constitutions outlawing the saloon. These prohibit drinking in screened rooms, or drinking while standing. But on the other hand, such states as Connecticut which permit the existence of "taverns", only camouflage under a more attractive name, the evil that was intended to be eliminated.

Intoxication.—Reports as to arrests for drunkeness and reckless driving are conflicting. To correlate an increase in both with the repeal of the prohibition amendment is to neglect the innumerable factors that may enter in the situation. In Los Angeles, for instance, officials admit that the increase shown in arrests for driving while intoxicated is due to more rigid enforcement. Increased congestion of traffic demanded it.

CONCLUSION

Due to the inexperience of public officials and the new difficulties of the problem, liquor control has been in a state of flux and uncertainty. Despite however, the varieties of treatments and the uncertainties of the results, it is highly doubtful if we shall, within the near future, revert to another era of national prohibition. The force of public opinion still favors experiment.

THE ELECTIONS OF 1934

By Thomas N. Hoover

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THE VOTE AND COMPARATIVE RESULTS

More than 5,000,000 voters of 1932 failed to vote in 1934. The vote in 1932 was 37,481,091, of which 20,386,334 were Democrats and 15,715,010 Republican. In 1934 it was 32,280,000 of which 17,440,438 were Democratic, and 13,512,749, Republican. The entire membership of the House of Representatives of the Seventh-fourth Congress, one-third of the Senators, and Governors in two-thirds of the states were elected in 1934. In each case, there was a slight gain for the Democrats. In the popular vote, however, the Democrats lost by a small margin, as compared with the results of 1932. In 1932, of every thousand Democrats and Republicans, the Democratic vote was 564.7, and the Republican 435.3; in 1934, the Democratic vote was 563.1 to 436.9 for the Republicans. This was a Democratic loss of 1.6 per thousand.

The make up of the Seventy-third Congress was as follows:

In the House, Democrats, 314; Republicans, 116; Farmer-Labor, 5.

In 1934 Election, Democrats, 322; Republicans, 103; Farmer-Labor 3; Progressive, 7.

In the Senate of two years ago were 60 Democrats, 35 Republicans and 1 Farmer-Labor.

In the 74th Congress, there are 69 Democrats, 25 Republicans, 1 Farmer-Labor, and 1 Progressive.

The vote gave the President further opportunity to end the depression. Should he and his party fail to restore prosperity on a sound basis, they will undoubtedly be held to an accounting two years hence.

The following is the tabulation of gubernatorial votes and results in the 1934 election.

STATE GOVERNORS

Alabama	
Bibb Graves, Dem.	63,752
Arizona	
B. B. Mouer, Dem. (Re-elected)	(Votes not available)
California	
Frank F. Merriam, Rep.	1,138,620
Upton Sinclair, Dem.	879,537
Raymond L. Haight, Prog.	302,519
Milen D. Dempster, Soc.	2,947
Sam Darsy, Com.	5,826
Colorado	
Ed. C. Johnson, Dem. (Re-elected)	237,026
Nate C. Warren, Rep.	162,791
Paul S. McCorrick, Soc.	5,355
Paul W. Hipp, Pro.	1,430
P. C. Feste, Com.	1,290
Connecticut	
Wilbur L. Cross, Dem.	257,996
Alcorn, Rep.	249,397
McLevy, Soc.	38,438
Idaho	
C. Ben Ross, Dem.	93,313
Frank L. Stephan, Rep.	75,659
Iowa	
Clyde L. Herring, Dem. (Re-elected)	469,831
Dan W. Turner, Rep.	393,630
Kansas	
Alf. M. Landon, Rep. (Re-elected)	386,624

Maine

Louis J. Brann, Dem.	156,917
Alfred K. Ames, Rep.	133,414

Maryland

Harry W. Nice, Rep.	253,813
Albert C. Ritchie, Dem.	247,664
Broadus Mitchell, Soc.	6,787
Wm. A. Gillespie, Ind.	2,831

Massachusetts

James M. Curly, Dem.	736,463
Gaspar G. Bacon, Rep.	627,413
Frank A. Goodwin, E. T.	94,141
A. B. Lewis, Soc.	12,282

Michigan

Frank D. Fitzgerald, Rep.	659,743
Arthur J. Lacy, Dem.	577,044
A. E. Larsen, Soc.	12,002
John Anderson, Com.	5,734

Minnesota

Floyd B. Olson, F.-L. (Re-elected).	486,812
Martin A. Nelson, Rep.	396,359
John E. Regan, Dem.	176,928

Nebraska

R. L. Cochran, Dem.	284,095
Dwight Griswold, Rep.	266,797

Nevada

Rickard Kirman, Dem.	23,088
Morney Griswold, Rep.	14,778

New Hampshire

H. Styles Bridges, Rep.	89,481
John L. Sullivan, Dem.	87,019

New Jersey

Harold G. Hoffman, Rep.	686,440
William L. Dill, Dem.	674,096
H. F. Neissner, Soc.	8,787

New Mexico

Clyde Tingley, Dem. (Re-elected).	78,390
Jaffa Miller, Rep.	71,896

New York

Herbert Lehman. Dem. (Re-elected)	2,201,729
Robert Moses, Rep.	1,393,638
Charles Solomon, Soc.	126,580
Israel Amter, Com.	45,878

North Dakota

Thomas H. Moodie, Dem.	145,333
Lydia Langer, Rep.	127,954

Ohio

Martin L. Davey, Dem.	1,118,257
Clarence J. Brown, Rep.	1,052,851
I. O. Ford, Com.	15,854

Oklahoma

E. M. Marland, Dem.	200,133
W. B. Pine, Rep.	118,412

Oregon

Charles H. Martin, Dem.	116,677
Peter Zimmerman, Ind.	95,519
Joe E. Dunne, Rep.	86,923

Pennsylvania

George H. Earle, Dem.	1,476,467
William Schmader, Rep.	1,410,138
Jesse A. Holmes, Soc.	42,417
Herbert T. Ames, Pro.	13,521

Rhode Island

Theodore F. Green, Dem. (Re-elected)	(Votes not available)

South Carolina

Olin D. Johnston, Dem.	22,873

South Dakota

Tom Berry, Dem. (Re-elected)	172,053
William C. Allen, Rep.	119,211
Knute Walstad, Ind.	2,150

Tennessee

Hill McAllister, Dem. (Re-elected).	198,743

Texas

James V. Allred, Dem.	118,194

Vermont

Charles M. Smith, Rep.	73,620
James P. Lemay, Dem.	54,159

Wisconsin

Phil La Follette, Prog.	(Votes not available)

Wyoming

Lesley A. Miller, Dem.	(Votes not available)

STATE ISSUES

Nebraska. — In several of the states amendments were voted on, and in most cases rejected. The one of outstanding interest to be adopted was in Nebraska, where the old bicameral state legislature was voted out, and a one-house state legislature provided, the vote being 286,086 to 193,152. Two other amendments were approved in the same state, one a repeal amendment, and the other a pari-mutuel.

Maine voted a repeal amendment, 161,893 to 85,363. An increase in debt limits and for additional bond issues were also voted.

South Dakota, by a vote of 142,176 to 108,237 adopted a repeal amendment.

North Dakota.—The vote on legalizing Sunday movies was 136,743 to 135,073 against.

Oklahoma. — Voters adopted two amendments, one to enable cities to pension police officers; the other regarding the consolidation of public service corporations.

Idaho.—Voters added four amendments, providing for juries of six in certain civil cases; election of judges on non-partisan ballots; regulation of liquor traffic; and term of County Commissioners.

Minnesota.—Household goods and farm machinery are exempt fom taxation by the recent amendment to the Constitution of Minnesota, by the vote of 630,125 to 181,126 against.

Montana.—Two amendments were added to the Constitution in Montana. By vote of 60,828 to 31,799 county commissioners were given the power to consolidate county offices. An income tax amendment was adopted by vote of 106,010 to 60,912.

CHRONOLOGY OF AMERICAN POLITICAL EVENTS

(From *The New York Times,* January 1, 1935)

JANUARY

Jan. 3—President Franklin D. Roosevelt addresses the Seventy-third Congress in its first regular session, assembled for the first time on Jan. 3, in the House of Representatives, adjourned from special session of June 15, 1933; he reviews the work of the last ten months and asks for continued legislative cooperation.

Jan. 4—He receives the budget for the last half of the fiscal year: expenditures $10,000,000,000 with a deficit of $7,000,000,000, borrowings of $6,000,000,000, refunds of $4,000,000,000—the most expensive peace-time budget in history.

Jan. 5—Liquor taxes projected by the House of Representatives under repeal should yield an annual revenue of $545,000,000; on Jan. 10 the Senate accepts its rates and adds, to the $2 a gallon for gin and whisky, the 10 to 40 cents on wine, and $5 a barrel on beer, heavy import duties, which, however, are not insisted on.

Jan. 6—In consideration of reduced wheat acreage, 287,970 farmers of thirty-three states have received payments of $21,386,607, Kansas leading with $8,000,000 and Texas second with $2,000,000—according to report of the Agricultural Adjustment Administration.

Jan. 10—A special message to the Senate to hasten ratification of the St. Lawrence Waterway treaty with Canada.

Jan. 15—Asks for authority, in special message to Congress, to stabilize the dollar between 50 and 60 per cent of the gold dollar, to create a stabilizing fund of $2,000,000 gold, and to transfer the holding of gold from the Federal Reserve Banks to the Treasury.

Jan. 20—While not advocating government ownership of railways, Joseph B. Eastman, Coordinator of Transportation, suggests ownership by a corporation chartered by Congress, whose bonds, guaranteed by the government, would take over the present railway securities.

Jan. 21—Funds of the RFC have been increased to $3,750,000,000, and its lease of life extended to Feb. 1, 1935.

Jan. 29—Veterans to the number of 486,926 have been removed from pension rolls by the Economy Act of March 20, 1933, according to Administrator Hines.

Jan. 30—President Roosevelt signs the monetary bill, and fixes $35 an ounce as the price of Treasury gold, thus devaluing the gold dollar to $.5906; abandons gold coinage; the bill had passed the House, Jan. 20, 360 to 40; the Senate, Jan. 27, 66 to 22.

FEBRUARY

Feb. 1—From the low March level of 59.6 per cent wholesale commodities have increased to within 27.6 per cent of the 1926 maximum —according to NRA labor statistics.

Feb. 9—A special message asks Congress to regulate stock exchange transactions.

Feb. 14-May 8—Army fliers take over the ail mail with private contracts unexpired and various charges pending; March 10—Due to loss of life the army routes are curtailed; April 20—Civilian contracts for seventeen routes with a total of 19,000 miles are opened in Washington; May 3—Contracts are awarded on a basis provided by Congress on April 28; May 8—The Army's Air Corps turns over to a private flier the coast-to-coast airmail route.

Feb. 17—The President endorses in principle the Bankhead bill imposing a tax on the ginning of cotton in excess of 9,500,000 bales.

Feb. 26—A special message to Congress recommends an extension of government authority over transportation and means of communication.

Feb. 27—General Hugh S. Johnson, NRA Administrator, replies to critics and suggests a revision program of twelve points.

MARCH

March 2—A special message to Congress asks it to transfer to the President the tariff-making power, so that he may hasten national recovery by negotiating reciprocal trade covenants. In another special message he asks for revision of the Philippine independence bill vetoed by President Hoover, eliminating the clauses for army bases and modifying the naval provisions. General Johnson, addressing a conference of code heads in Washington, asks for a further reduction of 10 per cent in work hours and a 10 per cent increase in hour wages, which is accepted by large bodies of industrial bodies—particularly the reduction of work hours.

March 5—In reviewing the eight and one-half months' work of the National Recovery Administration, the President urges increased wages and shorter hours.

March 8—He has Secretaries Hull, Wallace and Roper to expound his tariff message of March 2 before the House Ways and Means Committee.

March 10—That water and motor carriers, as well as railways, be placed under the control of the Interstate Commerce Commission is the recommendation of Coordinator of Transportation Eastman.

March 19—The President sends to banking committees of both houses a bill providing for twelve regional credit banks for industry which would discount or purchase the paper of other banks and assume 80 per cent of the risk.

March 23—The President approves the Wagner Unemployment Bill and creates the post of special advisor to the President.

March 24—The Philippine Independence (McDuffie-Tydings) Bill is signed; it adheres to U. S. naval bases, an insular constitution acceptable to the United States, and has a ten-year period of transition—passed by the House March 19, by the Senate March 22.

March 25—The President applies Section 7a of the Industrial Recovery Act and averts an automobile strike inspired by an attempt for union control.

March 27-28—The President suffers his first defeat by Congress enacting over his veto the bill restoring cuts in veteran pensions and pay cuts of government employes; The House, by a vote of 310 to 72, with 209 Democrats voting for the bill; the Senate, 63 to 27, with twenty-nine Democrats voting for the bill.

March 27—The Vinson Naval Bill signed, authorizing naval expansion, by 1939, to the limit of London Naval Treaty.

APRIL

April 13—Bill prohibiting the purchase of foreign government securities is signed.

April 21—The Bankhead Cotton Restriction Bill is signed; it allots by States a quota of 10,000,000 bales, a reduction of 41 per cent from the five-year average, and imposes a tax of 50 per cent of the market on ginning excesses instead of 12 per cent.

MAY

May 9—The Sugar Control Bill is signed and the President institutes its corollary under the flexible tariff provisions: ½-cent cut in the duty on Cuban raw sugar.

May 10—The Revenue Bill is signed.

May 20—Clarence Darrow, chairman of the National Recovery Board of

Review, reports to President Roosevelt an anomaly in the recovery procedure — monopolists are expected to execute a law against the law by which they operate, with the result that the biggest producers will survive and the smallest merchants be driven out of business.

May 22—Owing to excess supplies in the cotton-textile industry, General Johnson, Administrator of the NRA, orders a 25 per cent reduction in the hours of work with no shutdown. The President lays a compromise silver bill before Congress; on May 31 the House approves, 263 to 77, and the Senate, with six Democrats voting against, 54 to 25; it would establish an ultimate monetary base of 25 per cent silver and 75 per cent gold, and expects international agreements to coordinate the double standard.

May 27—By order of the NRA executive "service" industries are henceforth exempt from codes promulgated in 1933.

JUNE

June 1—The war debt situation is reviewed by the President, in the light of the Hoover moratorium, in a special message to Congress. Americans will henceforth view inability of debtor nations to pay in the light of their expenditures for armaments.

June 11—A revised code for the steel industry goes into effect to make it more flexible; in the last year the work-week was cut on the average from 39.7 to 34.4 hours and hour earnings increased from 53 to 71.4 cents.

June 12—Tariff bill, giving President authority to change rates, signed. Air mail bill is signed.

June 16—The President receives authority from Congress to appoint boards to investigate labor controversies with an amendment recognizing the right to strike, which authority is delegated to the Secretary of Labor, June 19, as far as the steel controversy is concerned.

June 19—The President signed the Silver Purchase Act; Treasury issued regulations covering tax of 50 per cent on profits due to speculative activities in silver.

President Roosevelt signed the bill creating the National Labor Relations Board and turned over to Secretary Perkins command in labor matters.

President Roosevelt permitted James A. Farley to retain Democratic National Committee chairmanship as well as the Postmaster Generalship.

June 21—Secretary Morgenthau ordered all Treasury employes to separate themselves from political jobs.

June 22 — President Roosevelt appointed Frank R. McNinch chairman of the Federal Power Commission.

June 26-30—Under Congressional authority voted June 16, the President appoints three boards: one to investigate longshoremen strike on Pacific Coast (Archbishop Hanna, O. K. Cushing and E. F. McGrady of the NRA); a National Steel Relations Labor Board (Chief Justice of North Carolina Walter P. Stacy, Rear Admiral Henry A. Wiley and the Rev. James Mullenbach); a National Labor Relations Board (Lloyd Garrison, Harry A. Millis and Edwin S. Smith).

June 28 — Secretary Morgenthau placed an embargo on exports of silver.

The President signed the National Housing Act designed to encourage the expenditure of $3,000,000,000 on the reconstruction and renovation of homes.

June 30—President Roosevelt appointed James A. Moffett of New York administrator of the new Federal Housing Administration.

The first report of the National Labor Board shows that since its inauguration it has entertained 3,755 grievances and, through its regional boards, settled 3,061, besides mediating in 1,323 strikes, 1,023 of which were settled.

The Farm Bankruptcy Bill is signed.

A commission is appointed and a committee created: the Securities and Exchange Commission of jurists (Joseph P. Kennedy, George C. Mathews, James M. Landis, Robert E. Healey and Ferdinand Pecora), in accordance with act of June 6; an Industrial Emergency Committee to operate under NRA (Donald R. Richberg director, with Secretaries of the Interior and Labor).

President Roosevelt created the new Securities and Exchange Commission, headed by Joseph P. Kennedy of New York.

He appointed an impartial National Labor Relations Board, headed by Lloyd Garrison, and abolished the old National Labor Board.

The President signed the Railway Employes Pension Bill.

JULY

July 10—General Johnson, it became known, had recommended to the President termination of one-man control of the NRA and the setting up of a commission to pilot the future course.

July 14—A three-man Industrial Appeals Board to act on all complaints of inequitable application of NRA codes was set up by order of General Johnson.

July 21—A National Mediation Board is appointed under Railway Act of June 16, to operate as court of appeal for the National Board of Adjustment appointed June 30 (Professor William M. Leiserson, James M. Carmalt and John Carmody).

AUGUST

Aug. 5—In radio talk, from Glacier National Park, the President said he would fight to save national resources, that the "day of stealing" of public domain had passed.

Aug. 18—He ordered General Johnson to remain on the job while reorganization of the NRA was being effected.

Aug. 21—President Roosevelt decided to make loans at 12 cents a pound on cotton held on farms through the Commodity Credit Corporation.

Aug. 22—He amends the Cotton Code of July 20, 1933, by reducing hours in cotton garment industry from forty to thirty-six and increasing base wage rates. He signs order for the former Oct. 12.

Aug. 25—Mr. Richberg, reviewing the NRA fight on depression, cited "tremendous gains," stressed coincidence of business advance with NRA codification, and asserted that 40,180,000 were employed in June, or 2,320,000 more than in June, 1933, and 4,120,000 more than in March, 1933.

Aug. 30—The President accepts resignation of Lewis W. Douglas as Director of the Budget.

SEPTEMBER

Sept. 25—As intimated by him to the President in July, General Johnson resigns as administrator, as his job under the needed reorganization of the NRA would be "altogether superfluous."

Sept. 27—A board to formulate the new policy and another to execute it are appointed by President Roosevelt; the former has as director Donald R. Richberg of the Industrial Emergency Committee with the Secretaries of Interior and Labor and the Administrators of Agriculture and Relief, Messrs. Davis and Hopkins; the executive board includes S. Clay Williams, chairman, with Arthur D. Whiteside, Professors Walton H. Hamilton of Yale and Leon C. Marshall of Johns Hopkins, and Sidney Hillman of the American Federation of Labor.

Sept. 28—The President created two of the three agencies proposed to take over the direction of the NRA; one a National Industrial Recovery Board of five members to take over General Johnson's administrative duties on Oct. 15; the other an Industrial Policy Committee, headed by Mr. Richberg.

Sept. 30—In a radio talk the President reviews the work of the New Deal—the chief obstacle to industrial recovery has been the strikes.

OCTOBER

Oct. 12—President Roosevelt issued an executive order requiring the cotton garment industry to reduce hours of labor to thirty-six hours a week, effective Dec. 1, while maintaining current weekly wages.

Oct. 19—He dedicates the Blue Ridge Mountains veterans' hospital, near Roanoke, Va., and advises the American Legion as to its exact status in the community.

Oct. 29—The President creates a National Emergency Council with Donald R. Richberg as head, composed of Cabinet officers and administrators of the NRA.

Oct. 31—President Roosevelt announced that the next Federal budget would provide for restoration on July 1, of the remaining 5 per cent of the 15 per cent Federal pay cut.

NOVEMBER

Nov. 10—The President appointed Marriner S. Eccles to be governor of the Federal Reserve Board, to succeed Eugene R. Black.

President Roosevelt appointed an advisory council of twenty members headed by President Frank P. Graham of the University of North Carolina to assist the Committee on Economic Security. Secretary Perkins appointed an advisory medical committee of ten to aid the Committee on Economic Security in its study of economic problems arising out of illness in families of low-income groups.

Nov. 14—President Roosevelt, addressing the advisory council of the National Committee on Economic Security, picked from the entire social security program one subject, unemployment insurance, for early enactment; indicating that the time was not ripe for old-age pensions.

DECEMBER

Dec. 8—The President plans a permanent NRA after expiration of NIR Act, June 16, 1935.

Dec. 10—He demands a drive against spectacular crime with special reference to the cooperation of Department of Justice agents.

The President, in a radio talk to the American Farm Federation Bureau convention at Nashville, emphasized the importance of recapturing foreign markets as a means of restoring national prosperity.

Dec. 12—His announcement that "the time has come to take profits out of war" is followed by an attempt of the Senate Munitions Committee to reveal the alleged profiteers of 1915-1920.

Dec. 15—Recommendations for revision of American policies as a neutral in case of war, involving the traditional attitude on "freedom of the seas" and insistence on neutral rights, to be submitted to the President in a comprehensive study by the State Department; and that wide powers for the President in time of conflict might be asked of Congress.

Dec. 31—President Roosevelt set his foot firmly against immediate payment of the veterans' bonus, expressing his views in a letter to Garland R. Farmer, commander of an American Legion post in Henderson, Texas.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Antiquarian Society, Worcester, Mass.

American Baptist Historical Society, Upland Avenue, Chester, Pa.

American Historical Assn., 40 B Street S. W., Washington, D. C.

American Irish Historical Society, 132 East 16th St., New York City.

American Jewish Historical Society, Broadway at 122nd Street, New York City.

American Numismatic Society,

156th Street at Broadway, New York City.

American Proportional Representation League, 1417 Locust Street, Philadelphia, Pa.

American Scenic and Historic Preservation Society, 287 Convent Avenue, New York City.

American Society of Church History, 98 Mercer St., Princeton, N. J.

Canadian Historical Assn., Ottawa, Canada.

Hispanic Society of America, 156th St., W. of Broadway, New York City.

Holland Society of New York, 90 West Street, New York City.

Huguenot Society of America, 2 West 45th Street, New York City.

Methodist Historical Society, 150 Fifth Ave., New York City.

Mississippi Valley Historical Assn., Station B, Lincoln, Neb.

New England Historic Geneological Society, 9 Ashburton Place, Boston, Mass.

Northwestern Assn. of History, Government and Economic Teachers, Spokane, Wash.

Presbyterian Historical Society, 520 Witherspoon Building, Philadelphia, Pa.

Society for the Preservation of New England Antiquities, 141 Cambridge St., Boston, Mass.

Steuben Society of America, 369 Lexington Ave., New York City.

Thomas Paine National Historical Assn., 148 West 47th Street, New York City.

United States Catholic Historical Society, New York City.

Woodrow Wilson Foundation, 6 East 39th Street, New York City.

POLITICAL

League for Industrial Democracy, 112 E. 19th Street, New York City.

National League of Women Voters, 726 Jackson place, Washington, D. C.

National Municipal League, 309 E. 34th Street, New York City.

Women's National Democratic Club, Inc., Central Park West and 61st Street, New York City.

Women's National Republican Club, 6 East 37th Street, New York City.

DIVISION II

INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

FOREIGN SERVICE OF THE UNITED STATES

By Herbert C. Hengstler

Division of Foreign Service Administration, Department of State

GROWTH AND DEVELOPMENT

Consular. — From the time when Benjamin Franklin was commissioned as the first Minister Plenipotentiary of the United States of America in 1778 and Col. William Palfrey was commissioned as the first Consul in 1780, efforts have from time to time been put forth to improve the foreign service of the United States. Little progress was made until 1856 when Congress enacted legislation effecting various improvements in the Consular Service. No further general legislation was enacted until April 5, 1906, when the act for the reorganization of the Consular Service was passed. In 1895 President Cleveland, by executive order, provided for examinations (non-competitive) for persons selected for appointments to a portion of the consulates then maintained. However, selections for appointment were still individual. The Act of 1906 and executive orders issued by President Roosevelt at that time placed the Consular Service on a merit basis.

Classification.—This was followed Feb. 5, 1915, by an act classifying diplomatic secretaries and consular officers, providing for their appointment to classes rather than to posts. The next important step forward was that of May 24, 1924, known as the Rogers Act, which amalgamated the two branches, diplomatic and consular, into one Foreign Service, all officers being available for service in either diplomatic or consular offices and sharing equally in opportunity for promotion on their efficiency.

New Legislation. — While the Rogers Act was of the greatest value in building up an efficient career service and in establishing a valuable morale, it did not contain many things which experience in its administration indicated were essential. The Congress gave much more consideration to the subject and as a result the latest advance step, known as the Moses-Linthicum Act, became law, Feb. 23, 1931. The major improvements made by the law are: (1) classification and merit system for clerical employees; (2) establishment of a Board and a Division of Foreign Service Personnel with carefully prescribed duties to insure impartial administration and promotions; (3) establishment of central disbursing and accounting offices; (4) maximum and minimum salary ranges in various classes; (5) statutory authorization for post and representation allowances; (6) cumulation of leave; (7) retirement at discretion of officer after service of 30 years.

ADMINISTRATION

Regulations.—In connection with the Foreign Service Act of Feb. 23, 1931, the administrative regulations embodied in Executive Orders (Nos. 5642/4, June 8, 1931) are of special importance. These regulations give practical effect to some of the chief purposes of the act. They set up machinery whereby it is put into operation by providing for a Board of Foreign Service Personnel, a Board of Examiners, a Foreign Service Officers' Training School, and a Foreign Service Officers' Training School Board.

Board of Foreign Service Personnel.—The duties of this Board are to examine into the character, ability, efficiency, experience and general availability of all members of the Service with a view to promotions, transfers and separations; to consider controversies or delinquencies among Service personnel, and to recommend those officers, who have shown special capacity, for promotion to the grade of minister. The Board is composed of not more than three Assistant Secretaries of State, one of whom shall be the Assistant Secretary having supervision over the Division of Foreign Service Personnel, who shall be chairman. The Chief of the Division of Foreign Service Personnel and one other member of the division may attend the meetings of the Board, but are not entitled to vote in its proceedings.

Board of Examiners.—The duties of the Board are to formulate rules to determine the scope and method, and hold examination of applicants for commission to the Foreign Service, and to determine those who are fitted for appointment. The examinations, which shall be both written and oral, are open only to Americans of good standing between the ages of 21 and 35 specially designated by the President for examination, who have been citizens of the United States for at least 15 years. American clerks and employees in the Foreign Service are granted certain exceptions concerning age and may be exempted by the Board from the written examinations. The Board is composed of not more than three Assistant Secretaries of State designated by the Secretary of State, the Chief of the Division of Foreign Service Personnel, and the Chief Examiner of the Civil Service Commission.

OFFICERS TRAINING SCHOOL

Purposes. — The purpose of this school is to provide a term of instruction in the Department of State as a period of probation for those successfully passing the examinations given by the Board of Examiners, and to judge, during this period, the new appointees to the Service as to their qualifications for advancement and assignment to duty as a Foreign Service officer. The governance of the school is to be set forth in rules and regulations prescribed by the Secretary of State. The school is under the direction of the Foreign Service School Board.

Foreign Service School Board.—The duties of the Board are to act in all matters concerning the functions of the school with the approval of the Secretary of State; to select the director of the School from among the officers of the Foreign Service with the approval of the Secretary of State, and in its discretion to select other instructors from among the qualified officers of the Department of State, the Foreign Service, the executive departments of the Government, and other available sources. The Board is composed of the Assistant Secretaries of State composing the Board of Foreign Service Personnel, one Foreign Service officer assigned for duty in the Division of Foreign Service Personnel, and the director of the School.

PERSONNEL

Changes.—During 1934 no examinations were held, due to the provisions of the so-called Economy Act, which prohibited the filling of vacancies during the fiscal year.

Promotions from the Ranks. — Since 1925, when the policy was formulated of promoting outstanding officers of the Service to the grade of Minister and Ambassador instead of recruiting them solely from civil life, there have been marked advances. During 1934, six Ambassadors out of a total of 16, and 19 Ministers out of a total of 38, have been drawn from the ranks of the Foreign Service. In addition, the Minister Resident and Consul General in Ethiopia, the Diplo-

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matic Agent and Consul General to Morocco and the Minister Resident and Consul General at Baghdad, Iraq, were Foreign Service officers.

Losses to the Service. — During 1934, there have been two deaths, nine retirements and five resignations from the Foreign Service. At present the Service totals 690 career officers.

CLASSIFICATION, FOREIGN SERVICE, 1935

	Salary	Number provided for 1935
Heads of Missions		
Ambassadors	$17,500	16
Ministers	12,000	2
Ministers	10,000	36
Diplomatic Agent and Consul General	9,000	1
		55
Foreign Service Officers		
Class 1	$9,000–10,000	28
Class 2	8,000– 8,900	29
Class 3	7,000– 7,900	46
Class 4	6,000– 6,900	55
Class 5	5,000– 5,900	64
Class 6	4,500– 4,900	97
Class 7	4,000– 4,400	88
Class 8	3,500– 3,900	85
Unclassified	3,000– 3,400	79
Unclassified	2,750– 2,900	47
Unclassified	2,500– 2,700	72
		690
Clerks—Senior		
Class 1	$4,000	2
Class 2	3,750	3
Class 3	3,500	8
Class 4	3,250	16
Class 5	3,000	62
Clerks—Junior		
Class 1	$2,750	67
Class 2	2,500	139
Class 3 . . . all under	2,500	1,317
		1,614

DIPLOMATIC PERSONNEL

AMBASSADORS

ACCREDITED BY UNITED STATES			ACCREDITED TO UNITED STATES	
Argentina	Alexander W. Weddell	1933	Sr. Dr. Felipe A. Espil	1931
Belgium	Dave Hennen Morris	1933	His Highness Prince Eugène de Ligne (Chargé d'Affaires *ad interim*)	1934
Brazil	Hugh S. Gibson	1933	Oswaldo Aranha	1934
Chile	Hal H. Sevier	1933	Señor Don Manuel Trucco	1933
Cuba	Jefferson Caffrey	1933	Sr. Manuel Marquez Sterling	1933
France	Jesse Isidor Straus	1933	André de Laboulaye	1933
Germany	William E. Dodd	1933	Herr Hans Luther	1933
Great Britain	Robert Worth Bingham	1933	The Honorable Sir Ronald Lindsay	1930
Italy	Breckenridge Long	1933	Signor Augusto Rosso	1933
Japan	Joseph C. Grew	1932	Hiroshi Saito	1933
Mexico	Josephus Daniels	1933	Sr. Dr. Don Fernando González Roa	1933
Peru	Fred Morris Dearing	1930	Sr. Don Manuel de Freyre y Santander	1930
Poland	John Cudahy	1933	Stanislaw Patek	1933
Spain	Claude Gernade Bowers	1933	Señor Don Luis Calderón	1934
Turkey	Robert P. Skinner	1933	Mehmet Munir	1934
Union of Soviet Socialist Republics	William C. Bullitt	1933	Alexander Antonovich Troyanovsky	1933

FOREIGN SERVICE OF THE UNITED STATES

MINISTERS

	ACCREDITED BY UNITED STATES		ACCREDITED TO UNITED STATES	
Albania	Post Wheeler	1933	Faik Konitza	1926
Austria	George S. Messersmith	1934	Edgar L. G. Prochnik	1925
Bolivia	Fay A. des Portes	1933	Sr. Dr. Don Enrique Finot	1932
Bulgaria	Frederick A. Sterling	1933	Stoyan Petroff Tchomakoff (Chargé d'Affaires)	1933
Canada	Warren Delano Robbins	1933	The Honorable William Duncan Herridge	1931
China	Nelson T. Johnson	1929	Sao-Ke Alfred Sze	1933
Colombia	Sheldon Whitehouse	1933	Señor Alberto González-Fernández (Chargé d'Affaires *ad interim*)	1934
Costa Rica	Leo R. Sack	1933	Sr. Don Manuel Gonzalez-Zeledon (Minister Resident)	1932
Czechoslovakia	J. Butler Wright	1934	Dr. Ferdinand Veverka	1928
Danzig, Free City of	Waldemar J. Gallman (Consul in Charge)	1934	———	
Denmark	Mrs. Ruth Bryan Owen	1933	Otto Wadsted	1930
Dominican Republic	H. F. Arthur Schoenfeld	1931	Sr. Don Roberto Despradel	1931
Ecuador	William Dawson	1930	Sr. Capitán Colón Eloy Alfaro	1933
Egypt	Bert Fish	1933	Ibrahim Ratch Bey	1934
El Salvador	Frank P. Corrigan	1934	Señor Dr. Don Hector David Castro	1934
Estonia	John Van A. MacMurray	1933	Charles Kuusik, Acting Con. Gen'l in N. Y. C. in charge of Legation	1932
Ethiopia	William P. George (Chargé d'Affaires *ad interim* and Consul in Charge)	1934	———	
Finland	Edward Albright	1933	L. Astrom	1922
Greece	Lincoln MacVeagh	1933	Charalambos Simopoulos	1924
Guatemala	Matthew E. Hanna	1933	Sr. Dr. Don Adrian Recinos	1928
Haiti	Norman Armour	1933	Albert Blanchet	1933
Honduras	Julius G. Lay	1929	Sr. Dr. Don Miguel Paz Baraona	1933
Hungary	John Flournoy Montgomery	1933	John Pelenyi	1933
Iraq	Paul Knabenshue	1933	———	
Irish Free State	James Orr Denby (Chargé d'Affaires *ad interim*)	1934	Michael MacWhite	1929
Latvia	John Van A. MacMurray	1933	Arthur B. Lule, Consul General in N. Y. C. in charge of Legation	1927
Liberia	Frederick P. Hibbard (Chargé d'Affaires *ad interim*)	1934	———	
Lithuania	John Van A. MacMurray	1933	Bronius Kasimir Balutis	1928
Luxemburg	Dave Hennen Morris	1933	———	
Monaco	Austin C. Brady (Consul, in charge)	1933	———	
Morocco	Maxwell Blake (Diplomatic Agent)	1927	———	
Netherlands	Grenville T. Emmet	1934	Jonkheer H. M. van Haersma de With	1934
Nicaragua	Arthur Bliss Lane	1933	Sr. Dr. Don Henry De Bayle (Chargé d'Affaires *ad interim*)	1933
Norway	Hoffman Philip	1930	Wilhelm Munthe de Morgenstierne	1934
Palestine	Ely E. Palmer (Consul in charge)	1933	———	
Panama	Antonio C. Gonzalez	1933	Sr. Dr. Ricardo J. Alfaro	1932
Paraguay	Meredith Nicholson	1933	Sr. Dr. Don Enrique Bordenave	1933
Persia	William H. Hornibrook	1934	Ghaffar Khan Djalal	1933
Portugal	Robert Granville Caldwell	1933	Dr. Joao Antonio de Bianchi	1933
Rumania	Alvin Mansfield Owsley	1933	Charles A. Davila	1929
San Marino	Joseph E. Haven (Consul, in charge)	1925	———	
Siam	James Marion Baker	1933	His Serene Highness Prince Damras Damrong Devakula	1933
Sweden	Laurence A. Steinhardt	1933	W. Bostrom	1926
Switzerland	Hugh R. Wilson	1927	Marc Peter	1920
Syria	Christian T. Steger (Consul, in charge)	1934	———	
Union of South Africa	Ralph J. Totten	1930	Ralph William Close	1934
Uruguay	Leon Dominian (Chargé d'Affaires *ad interim*)	1934	Mr. J. Richling	1934
Venezuela	George T. Summerlin	1929	Sr. Dr. Don Pedro Manuel Arcaya	1930
Yugoslavia	Charles S. Wilson	1933	Dr. Leonide Pitamic	1929

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

THE UNITED STATES AND WORLD AFFAIRS

By John M. Mathews

Professor, University of Illinois

The foreign relations of the United States during 1934, were somewhat obscured in the public eye by the importance of the internal developments connected with the various ramifications of the "New Deal." Some noteworthy developments in our external relations, however, did occur during the year.

THE DISARMAMENT CONFERENCE

A session of this conference was held in the summer of 1934. The United States had virtually withdrawn from the previous session on the ground that the discussions had become entangled with European political questions. When, therefore, Norman Davis appeared in the conference of 1934 as representative of the United States, the event was interpreted as indicating that our government hoped the conference was still capable of accomplishing something. Mr. Davis made a speech advocating the gradual abolition of offensive weapons such as tanks and bombing planes. The conference adjourned, however, without accomplishing anything of importance, leaving its affairs in the hands of the Conference bureau.

TRAFFIC IN ARMS

At the Disarmament Conference at Geneva in the summer of 1934, Norman Davis declared that the American people were desirous of joining other nations in working out "by international agreement an effective system for the regulation of the manufacture of, and traffic in, arms and munitions." The evils of the private traffic in arms were brought to public notice especially in connection with the conflict between Bolivia and Paraguay in the Chaco. Although the United States and other nations were attempting to effect a settlement of this conflict, the armaments manufacturers in the United States and other neutral countries were actively engaged in selling arms and munitions to the warring powers. In order to remedy this situation, a resolution was passed by Congress and approved by President Roosevelt on May 28, authorizing the President to prohibit the sale within the United States of arms to the two belligerent nations. The President immediately put the resolution into effect, but, in order to avoid violation of commercial treaty provisions, it did not prohibit the export of arms and munitions to Bolivia and Paraguay. The President did, however, declare an embargo on the shipment of arms and munitions to Cuba, except by license of the State Department. It is the policy of the State Department to allow shipments only to the established government in Cuba which we recognize. Similar arrangements are in effect with respect to China, Honduras, and Nicaragua.

For five years prior to 1934, the State Department maintained the position that constitutional limitations on the treaty-making power made it impracticable for the United States to enter into treaties for the control of the private manufacture of arms. The theory was that regulation of manufacture is within the reserved powers of the states under the Constitution. In 1934, however, the State Department changed its position in this respect and indicated its willingness to enter into negotiations with foreign powers looking towards the control of the manufacture, as well as the sale, and export of arms and munitions.

When the bureau or standing committee of the Disarmament Conference reconvened in Geneva on Nov. 20, Hugh R. Wilson, American Minister to Switzerland, presented the plan of the American Government for the control of the arms traffic. The plan is in the form of a draft convention or international treaty, which provides for international control of the manufacture of, and traffic in, all arms. This control is to be administered by a permanent commission, to be composed of one representative of each signatory power. Munitions makers and arms dealers would be licensed to sell abroad. The permanent commission would have power of investigation, both regular and special, and to make reports to the League of Nations. The proposed convention, however, does not envisage the use of League authority for the enforcement of the treaty, but depends rather upon publicity for this purpose. Moreover, it does not contemplate governmental monopoly of arms manufacture, but leaves this in private hands, subject to rigid supervision. The proposed treaty is similar to the British draft convention, previously proposed. It represents a new departure, however, for the United States to take such a prominent part in respect to this matter.

Meanwhile, if there were still any doubt that the unregulated private manufacture and sale of arms and munitions are subject to serious objections, it was being removed by the disclosures brought about by the investigations and hearings of the Senate munitions committee. Among other things, these investigations showed: (1) armament firms sell arms simultaneously and indiscriminately to both sides in time of war, including revolutionary and governmental factions in civil war; (2) they maintain lobbies to support military and naval appropriations and to oppose arms embargoes; (3) that, by mislabeling shipments, they send arms to warring nations in violation of embargoes, and (4) that American, British, and German armament firms exchange information among themselves regarding secret processes and join together for the purpose of stimulating armament races between friendly nations.

As further illustration of the favorable attitude of the United States towards the movement for peace may be mentioned the American signature of the Argentine Anti-war Pact, which is similar to the Kellogg-Briand Pact.

THE UNITED STATES AND THE LEAGUE OF NATIONS

Although Germany and Japan are two nations of the world with which the United States has outstanding controversies, we have one thing in common with them and that is we stand with them in remaining outside the League. As a non-member we decline to cooperate with the League in certain matters, particularly in European political questions. On the ground of non-membership we declined an invitation to be represented on the League's advisory committee on the Chaco War, but we accepted the League's invitation to be represented on the neutral supervisory commission to deal with the military aspects involved in the expected cessation of hostilities in the Chaco. In connection with scientific and humanitarian matters, our Government has shown a steady tendency toward greater cooperation. The most noteworthy development in this respect during 1934 was the acceptance by the United States of the invitation to become a member of the International Labor Organization (I. L. O.). The United States was instrumental in securing the establishment of this organization and is now somewhat tardily recognizing its own child. The weight of the United States will henceforth be cast in support of the efforts centering at Geneva for the amelioration of the conditions of labor throughout the world. Entrance into the I. L. O., however, is made on condition that the United States assumes no obligations under the Covenant of the League.

THE UNITED STATES AND JAPAN

The Stimson doctrine of the nonrecognition of Manchukuo has not been departed from by the Roosevelt Administration. On the other hand, there are some indications that the support given it by the Administration is somewhat lukewarm. Possibly our government might be willing to recognize Manchukuo in exchange for substantial concessions. At any rate, the Administration shows no disposition to adopt the rôle of leadership in marshalling world opinion against

Japan. We should prefer to follow Great Britain or the League of Nations if a threatening attitude towards Japan should be adopted.

LONDON NAVAL CONVERSATIONS

Preliminary conversations were held in London between representatives of the United States, Great Britain, and Japan with the intention of clearing the way for a proposed naval conference in 1935. It was thought that such a conference would be desirable in order to negotiate a new agreement to take the place of the Washington Naval Treaty of 1922 which expires on the last day of 1935. That treaty provides for the 5-5-3 ratio between the United States, Great Britain, and Japan in the tonnage of their capital ships. The placing of Japan on a 60-per cent basis as compared with the other two nations was done on the theory that Japan's interests in the Northwestern Pacific region were more isolated and less scattered than were those of the other two powers, which have more far-flung possessions to defend. Japan, however, has been dissatisfied with this arrangement and was able to secure a 10-10-7 ratio for smaller craft at the London Conference of 1930. Her delegates to the London preliminary naval conversations of 1934 were instructed to demand full naval parity of Japan with the United States and Great Britain. She also announced her intention of denouncing the Washington Naval Treaty of 1922.

The attitude of Japan with reference to this matter was deplored by our government as presaging an unprecedented naval race. Our government declined to agree to the Japanese demand for parity, which was interpreted as in reality a demand for superiority, in view of her smaller needs. We were quite willing to allow Japan equality of security, but it was generally felt in the United States that the demand for parity of armaments represented an effort by Japan to make herself so dominant in the Far East that she would be able to carry out her will in that region without possibility of effective interference by other nations. In particular, China and Manchuria would fall so completely under her control that she could disregard treaty obligation with impunity, and the Open Door for American commerce in the Far East would become virtually non-existent. This explains the insistence of the American Government upon the maintenance of the 5-5-3 ratio. Japan, on the other hand, deems that her national honor and prestige requires parity and regards her dominance in the Far East a matter of vital national necessity. Therefore, compromise between the conflicting aims of the two governments seems difficult.

THE MANCHUKUO OIL CONTROVERSY

Even before denouncing the Washington Naval Treaty, Japan gave evidence of an intention to close at least partially the open door in the Far East. This took the form of a proposal by the Manchukuo Government to give an oil sales monopoly to a Japanese-controlled company. This scheme is closely connected with Japanese plans for naval supremacy in that region, since Manchuria is the principal source of fuel oil for Japanese ships. The American and British Governments protested against this proposal as a violation of the open door principle embodied in the Nine Power Treaty of 1922. The Japanese reply to this protest was that since Manchukuo is an independent state, the Open Door treaty is not violated. The United States, however, continues to maintain that Manchukuo is a mere puppet of Japan. The oil monopoly plan seems to be the opening wedge to Japanese control over commercial opportunities and development in the Far East, to the exclusion of Occidental powers.

THE WAR DEBT QUESTION

The European war debtors, with the exception of Finland, defaulted in the payment of their debts to the United States during 1934. This was probably due in part to the passage by Congress of the Johnson Act. This law, enacted in April, prohibited the floating of loans in the United States by any foreign government which was in default in the payment of its indebtedness, or any part thereof, to the United States Government. Some governments were already in complete default before the passage of this law, and others were making merely token payments. The Attorney-General ruled that governments making merely token payments after the passage of the Johnson Act would be regarded as in default. When Great Britain found that she could not avoid default by a token payment, she suspended payments altogether and other nations followed her example. The British contention was that there was no definite default but merely a suspension of payments until it should become possible to reach an agreement for the ultimate settlement of intergovernmental debts. She thus attempted to link up her debts to us with the debts due her. Our government denied that there was any connection between these, and suggested that payments to the United States might be made in kind, but intimated that the initiation of proposals for debt reduction should come from the debtor.

The attitude of the foreign governments regarding the payment of the war debts in June and December was virtually the same. On both dates, the United States dispatched notes to each of the debtor governments notifying them of the amount due, but on both dates, Finland alone met her obligations. This *dénouement* was fully expected and it would seem that, if the debt question should be resurrected, its solution will have to await recovery from the world-wide depression.

GERMAN BOND DEFAULTS

The payment of interest on German Government bonds held by private investors in the United States was held up by that Government. This development did not at first affect the Dawes and Young Plan loans but those issues were also finally included. The German Government pleaded inability to pay because of the unfavorable balance of trade. There was some doubt in the United States as to whether this inability really existed, and the German move was interpreted in some quarters as an attempt to force this country to import more goods from Germany. The German Government was also accused of depressing the market value of her bonds in this country and then buying them up at depreciated prices. Investors in other European countries were also affected at first by the German move, but vigorous representations by the governments of those countries induced Germany to recede from her stand. The United States dispatched several sharp notes to Berlin, complaining especially of the discrimination against American holders of German bonds. These protests, however, had seemingly little effect. Because of the comparatively small amount of imports from Germany, the United States was not in as favorable a position as were several other European governments to enforce our demands for equal treatment.

RELATIONS WITH RUSSIA

The interchange of notes between the United States and Russia at the time of American recognition of the Soviet Government in 1933 left the question of debts for future settlement. The anticipated increase of Russian trade with the United States which, it was predicted, would follow recognition, has not materialized. This is usually accounted for on the ground of the lack of settlement of the debt issue. Russia promises to increase purchase of goods in the United States if she can obtain credit. The Johnson Act prevents nations in default in the payment of their debts to the United States from floating loans in this country. This would include Russia in the prohibition, but the act contained a provision allowing the Export-Import Bank, established by the Reconstruction Finance Corporation, to extend credit to Russia. The board of trustees of the Bank, however, passed a resolution against extending credit to Russia until a debt settlement was reached. The negotiations looking to the settlement of the debt question were carried on during the year, first at Moscow and later at Washington, but apparently without reaching any definite agreement. Even were the debt question settled, there seems to be little prospect of any great revival of trade with Russia.

THE UNITED STATES AND CUBA

The policy of the United States toward Latin America in general was exemplified by our treatment of Cuba. In December, 1933, President Roosevelt in his Wilson Day Address and Secretary Hull at the Montevideo Conference had expressed the good-neighbor policy toward Latin America. The former gave a continental interpretation of the Monroe Doctrine by declaring that "if and when the failure of orderly processes in a country affects the other nations of the continent, it becomes a joint concern of a whole continent in which we all are neighbors."

The express provision contained in the Platt Amendment authorizing American intervention in Cuba under certain circumstances was a cause of friction between the two countries. This right of intervention was also provided for in the Cuban-American treaty of 1903. Our government felt that the time had come when Cuba should stand on her own feet. Consequently, a new treaty was negotiated and signed in May and promptly approved by the Senate whereby the United States definitely surrenders the right of intervention in Cuba in so far as it had rested on contract. Henceforth, any right we may have in that regard rests merely on the general principles of international law. The United States still maintains a naval base at Guantanamo.

In order to facilitate the carrying out of Secretary Hull's reciprocal trade agreements policy, Congress in June passed the Trade Agreements Act giving the President special tariff and trade bargaining powers. The first agreement of this sort negotiated by Secretary Hull after the passage of the Act was that with Cuba which was signed in August. It is designed to restore the once flourishing trade between the two countries. Large reciprocal reductions are made on imports into the respective countries, especially on Cuban sugar into the United States. Thus, some of the damage of the Smoot-Hawley Tariff Act is being undone. The negotiation of similar trade agreements with several other Latin-American countries is underway.

THE UNITED STATES AND HAITI

The good-neighbor policy was further illustrated by the American withdrawal from military occupation of Haiti. Just 19 years after the original occupation in 1915, American marines were finally withdrawn in August. Haiti is now left to work out her own destiny. The only control still exerted by the United States over Haitian affairs is the temporary continuation of the customs receivership until loans extended by American interests have been repaid.

THE UNITED STATES AND PANAMA

Three matters of controversy have arisen between the two countries. The first is as to whether the United States was granted full sovereign power over the Canal Zone by the treaty of 1903. The second relates to the right of the United States to intervene in Panama as given by the same treaty. The third question in controversy was caused by the suspension of gold payments in the United States. Our Government attempted to make the annual rental payment of $250,000 to Panama, as required by that treaty, in the form of a check. Panama returned the check and demanded gold. This question may be submitted to arbitration. A new treaty between the two countries is being negotiated in order to clear up outstanding questions.

UNITED STATES RELATIONS IN THE ORIENT AND NEAR EAST

By Albert Howe Lybyer

Professor, University of Illinois

JAPAN AND THE UNITED STATES

Statements of Policy.—Dr. Stanley K. Hornbeck, Chief of the Division of Far Eastern Affairs in the Department of State, in an address on Jan. 18, 1934, reaffirmed as the policy of the United States in the Far East, the agreement of nine powers in 1922, "to respect China's integrity, to foster the principle of equality of commercial opportunity, and to practice self-denial and self-restraint in relations with China." He observed that the "Stimson" doctrine, stated two years before, to the effect that the setting up of Manchukuo was contrary to treaties and should not be recognized, had been adopted by the League of Nations. Five days later Hirota, Japanese Foreign Minister, declared that "Japan . . . bears the entire burden of responsibilities" for peace in Eastern Asia. In spite of rumors that American policy would become more lenient, Secretary Hull in friendly manner declared on March 3, that no change of policy was contemplated.

Japanese Declarations.—Six weeks later a new Japanese declaration stiffened the attitudes of the United States and other powers against approving Japanese action. Eiji Amau, minor Foreign Office official, said that Japan had "assumed exclusive responsibility for peace in Eastern Asia, except as she might elect to share the burden with China." He further objected to the activities of the League of Nations in China through Dr. Rajchman; to the sale by America to China of wheat, cotton, and airplanes, and to the appearance in China of foreign military and aviation instructors. He suggested that Japan might intervene forcibly to stop such activities. Subsequent Japanese statements failed to soften, but rather extended these affirmations: the time had passed when other powers than Japan might exploit China; Japan's responsibility for peace in Eastern Asia was to be in cooperation with China, Siam, India, the East Indies, and the Philippines, omitting Indo-China and of course excluding the European and American powers.

Treaty Reminders and Suggestions. — A statement issued April 30, by the American Government answered Japan mildly by quoting international law as regards the ending of treaties, while similar messages from England and France referred to the continuance of treaties and the observance of international law. Suggestions from Japanese sources of a bilateral non-aggression pact and a division of the Pacific ocean into eastern and western zones dominated respectively by the United States and Japan were courteously discouraged by President Roosevelt in August.

Denunciation of Washington Treaty.—An important meeting of Japanese high officials on Sept. 7, reached the definite decision long foreshadowed to proceed in the direction of terminating naval treaties and working for the naval equality of Japan with the United States and England, on a basis of "global" tonnage, with perhaps agreed limitation of capital ships and emphasis not upon offensive but upon defensive strength. Critics of Japan affirmed that her desire was to make herself defensively impregnable, after which she would work her unobstructed will in Eastern Asia, in military, political, and economic matters.

The Privy Council met Dec. 18, and voted definitely to recommend to the Emperor to denounce the Washington Naval Treaty before the end of the year. At the same time they suggested resumption of the conversations looking toward a formal conference. The actual denunciation was accomplished in a brief note handed by Ambassador Saito to Secretary Hull in Washington at noon on Dec. 29. In the opinion of many Japanese this event was the most important since the Great War. In commenting the Ambassador said: "There is no problem between the United States and Japan that cannot be settled by diplomatic means." Americans regretted this action. The British were somewhat relieved to have a definite declaration. The French were pleased because they, too, preferred that the treaty disappear, desiring the right to build a navy equal not merely to that of Italy, but to that of Germany in addition. Officials of the League of Nations were greatly concerned, fearing lest Japan would proceed to divest herself of other treaty bonds until, perhaps, she would adhere only to the Briand-Kellogg Pact.

American Reaction.—The question continued to be debated whether the United States should hasten to build its navy up to treaty strength, looking toward an armament race, or should consent to reduced defensive fleets, which would remove the threat of Japanese aggression upon California, but would leave other nations powerless to restrain the advance of Japan in Eastern Asia. Announcement having been made in the summer that the United States Navy would hold extensive manoeuvers in the eastern Pacific Ocean in 1935, the Japanese announced in December that they also would hold manoeuvers in the same area.

MANCHURIA

Coronation of the Emperor.—The Japanese-guided government in Manchuria arranged a coronation on March 1, of the dictator, Pu Yi, as Emperor under the name Kang Teh. The name Manchukuo (Manchurian country) was declared changed to Ta Manchu Tikuo (Great Manchu Empire).

Railways.—In July through train service between Peking and Mukden was resumed after nearly three years of interruption. Negotiations with Russia for the purchase of the Chinese Eastern railway were maintained from January to May, and resumed in September, and apparently advanced to a successful conclusion. The price reported as agreed upon was $56,000,000, to be spread over three years, and paid largely in goods.

British Trade.—The Federation of British Industries sent a delegation of four men, with Lord Barnby as chairman, to Japan in August to study the possibilities of British trade with Manchukuo. They published in December a statement friendly to Japan, hoping for extensive sales of materials for communications, housing, and mining. They deprecated trade war and hoped for friendly cooperation.

Oil Interests. — They protested, however, against the Japanese treatment of British oil interests in Manchukuo, which also concerned American interests. In October announcement had been made that the Manchuria Oil Company, 80 per cent Japanese, was to have a monopoly of the sale of both crude and refined oil in Manchuria. This company would purchase the facilities of the foreign companies in Manchuria, and would buy oil from them for import by competitive bidding. Protests that this was a violation of the Open Door were of no avail. Apparently Japan desired to store quantities of oil under her control against the chance of war, besides securing large profits from oil products sold.

Consolidation of Japanese Authority.—By arrangement in Japan late in the year her authority in Manchukuo was further concentrated. A Manchurian Affairs Bureau was created, to act at Tokio directly under the Premier. The Japanese Ambassador to Manchukuo was to be also Commander-in-chief of the military forces there, and Governor-general of Kwangtung. Early in December, General Jiro Minami was appointed to this powerful command.

CHINA

Drive Against Communists.—The revolt in Fukien, against which General Chiang Kai-shek had turned the bulk of his army of 300,000 men, collapsed on Jan. 13. The immediate cause of the Nationalist victory was rumored to have been the payment of $6,000,000 (Mexican) to General Tsai Ting-Kai, to be distributed suitably. The Nationalist army was then free to resume its long bitter struggle with the Communists in Kiang-si. By September, with the help of airplanes and other modern weapons, and more considerate treatment of the population, it broke the power of the Communists, part of whom escaped in bands in various directions. General Chiang Kai-shek declared in December that in six years the Communists had killed 1,000,000 people and had driven 6,000,000 from their homes; many survivors were still in extreme want, but their morale was recovering rapidly; Fukien was being cleared of Communists, while others were fleeing westward. The Canton government had shown some sympathy with the Fukien rebellion, but became reconciled in February, and was allowed to float a loan of $15,000,000 Mexican in Shanghai.

Nanking Concessions to Japan.—The Nanking government seemed more inclined toward improving relations with Japan than the majority of its supporters. Recognition of Manchukuo was avoided by providing that a private company should arrange the resumption on July 1 of through train service between Peiping and Mukden. Before this the imperial coronation of Pu-yi and the Japanese utterances in April (see above) had provoked resentment but no official opposition. A new tariff schedule was announced on July 3, with lightening of the rates on goods imported by Japan, such as paper, cotton cloth, and sea foods, and increasing the rates on some Western products. Vigorous objections from many Chinese were ordered by Chiang Kai-shek to be silenced.

Rajchman Report.—On May 9, the report of Dr. Rajchman, special commissioner of the League of Nations, was released, with approval from the Chinese Economic Council. Expenditures six times as great as for the previous year were recommended, including the building of 4,000 miles of road. Agricultural experts were working to improve cotton seed, revive the declining silk and tea industries, and control floods. Fewer foreign and more Chinese experts were to be employed.

American Trade Agreements.—In August, the American wheat and cotton transaction arranged by T. V. Soong one year before was completed. While a credit had been opened in America for $40,000,000 to purchase cotton and $10,000,000 to purchase wheat and flour, China had used only $10,000,000 for cotton, $6,000,000 for wheat and $4,000,000 for flour. The total of $20,000,000 yielded the Chinese Government, after sale of the commodities, about $43,000,000 in Chinese money, of which $17,000,000 was set aside for currency adjustment, $6,500,000 for highways, $6,000,000 for commercial aviation, and smaller sums for irrigation, rehabilitation in Kiang-si, and improvements in the cultivation of cotton, silk, and tea. Partnership agreements were entered into with American aviation firms.

American Silver Purchases.—The purchase of silver by the American Government under the act of 1934 produced great and unexpected disturbance of China's money. Silver was drawn from Shanghai both by demands from the interior of China and by export to the United States, to a total amount estimated at 180,000,000 out of 447,000,000 ounces. Interest rates rose to 20 per cent and eight Chinese banks failed. Conditions were compared with those in the United States in March, 1933.

Proposed Constitution.—In December, the Central Executive Committee of the Kuomintang was completing a revised draft of the new Constitution of China. The plan as proposed in 1933, included the election of a President and Vice-President for six year terms; the preservation of the five Yuans, or Boards: Executive, Legislative, Judicial, Examination, and Control; a Supreme Court, and a Congress.

CONDITIONS IN THE NEAR EAST

Western Asia was on the whole during 1934, one of the calmest and quietest parts of the world. Except for a short war between Saudian Arabia and the Yemen, the nations were at peace with each other. Internally also they suffered privation and heavy tax burdens, but experienced comparatively little commotion. Turkey joined a four-power defensive alliance with Greece, Rumania, and Yugoslavia. There was earnest talk of a similar alliance of Mohammedan nations, including Turkey, Persia, Afghanistan, and perhaps Syria, Iraq, and Egypt. The treaty of peace between Ibn Saud and the Imam Yahya contained unusual protestations of friendship and Arab unity. In most countries plans were prepared or put into execution for public improvements, such as roads, railroads, harbor works and public buildings. Economic conditions improved somewhat everywhere, and in Palestine could be called good.

TURKEY

Turkey continued under the leadership of President Mustapha Kemal Pasha and his able and devoted group of ministers of state and legislators. The Balkan pact was signed Feb. 4, at Belgrade. The states guaranteed each others' boundaries, and agreed to consult together in case of threatened change. Turkey obtained a proviso that if Rumania should come into war with Russia, Turkey would not join; and Greece, because Yugoslavia might fight Italy, arranged that the boundaries guaranteed should be restricted to internal lines in the Balkan peninsula. This left Bulgaria and Albania suspicious and displeased.

The Shah of Persia visited Turkey in June, and spent two weeks in Ankara, Smyrna, the Dardanelles, and Istanbul. A series of visits to various capitals was arranged for Mustapha Kemal, but was postponed after the assassination of King Alexander of Yugoslavia in September. The long process of exchange of populations with Greece was brought to an end, leaving about 70,000 Greeks in the Istanbul region, and about 100,000 Turks in Western Thrace. Further nationalization of occupations was enforced, leading to the discharge and emigration of several thousand foreigners. Turkey pleased the U. S. government in March by delivering up Samuel Insull to its representatives.

The building of railroads and roads continued. A five-year plan for the enlargement of Turkish industry on the principle of state capitalism was inaugurated, with the aim of manufacturing Turkish raw materials into goods needed by the Turkish people.

EGYPT

Egypt at the beginning of the year was under the regíme established in 1930, by which the Wafd or Nationalist majority party was excluded from office and power. The British influence was quiescent, and the power of the king had been increasing. But during the year the king was ill much of the time, and growing murmurs had finally to be met by concessions. A decree of Nov. 7, placed the government in the hands of Tewfik Nasim Pasha as Príme Minister, and another decree on Nov. 30, suspended the 1930 Constitution and fell back upon the principles of 1922. A new phase of cooperation with the British Government began. Economic conditions improved somewhat during the year. More cotton was grown and the price was higher. The Sudan had been suffering heavily from the low price of cotton. Arrangements were made for renewed cöoperation with Egypt.

SYRIA

Syria continued under the forceful direction of M. de Martel, High Commissioner. He failed again to obtain ratification in Parliament of the treaty of the Syrian State with France, and finally in November dismissed Parliament and continued to rule as practical dictator with the cooperation of Sheikh Taj ed-Din.

In the Lebanon, a decree of Jan. 2, bestowed in effect a new and far simpler constitution, with a great degree of direct action on the part of the President under the High Commissioner. A single chamber, partly elected and partly appointed, possesses limited powers. Rumor had it that France would gradually let the Syrian State go, but would confirm her complete direct control of the Lebanon as a bridge-head of economic and political influence in West Asia.

Jews were given permission to acquire land in southern Syria, under the impossible conditions they would not band together and would cease to be Zionists.

M. de Martel endeavored to ignore political dissatisfaction, and advance various economic projects for the good of the country under mandate. Work was resumed after 16 years on the former Bagdad railway project, to be carried by Syria to the border of Iraq. Conversations were held with Turkey in regard to a line to Persia north of Iraq. The level of the lake at Homs was raised to provide more water for irrigation. Harbor works were carried on at Beirut and Tripoli. Oil flowed through the new pipeline to the latter port on July 18, and a shipload was conveyed triumphantly to France. The road across the desert *via* Palmyra to Bagdad was improved. Negotiations were undertaken with a view to bringing goods across Iraq and Syria between Persia and the West under bond.

PALESTINE

Palestine was remarkably quiet as between Jews and Arabs under the neutral control of England. Renewed talk of setting up a legislative council did not have results. A loan of £2,000,000 was arranged with the English Government, part of which was set aside to purchase land for landless Arabs. This diminished the tension from the immigration of German and Polish Jews, which was set at 18,500 and claimed to be 12,000 in excess of the lawful number. The German Jews brought considerable wealth, so that on the whole Palestine was, during the year, in a state of distinct prosperity. The completion of the mole at Haifa made that harbor by far the best on the Syro-Palestinian coast. New waterworks were begun for Jerusalem, Haifa, and Hebron.

THE ARABIAN PENINSULA

The great event of the year in the Arabian peninsula was the long-expected war between King Ibn Saud and the Imam Yahya of the Yemen. The rapid victory of the former proved the superiority of the organization of his country, and settled the question as to who should rule Arabia. The remarkable moderation of the treaty of peace promises that it will endure. No true Yemenite territory was annexed. The defeated power paid the costs. ''The high contracting parties, who are bound by the ties of Islamic brotherhood and by racial affinities, proclaim that their two nations form only one.'' Restoration of the Hejaz railway to operation and its extension to Mecca was contemplated.

IRAK

Irak lost prominence in the Western Asian world with the death in October, 1933, of the picturesque and wise King Feisal. Little progress was made toward removing the Assyrian Christians to another land. Military conscription was inaugurated for young men of 19 to 21 years of age.

PERSIA

Persia, henceforth to be known as Iran, continued to progress gradually toward modernization under Shah Riza Pehlevi. He visited Turkey and returned securely. He strove in vain to have his claim upon the Island of Bahrein recognized. Additional miles of the north-to-south railway were built, and the roads were further improved. There was talk of joining with Syria and Turkey in a railway from Teheran to the Mediterranean.

AFGHANISTAN

In Afghanistan the young king and his supporters continued to punish those suspected of aiding Nadir Shah's assassin, and Nadir's policy of cautious modernization was continued.

II. INTERNATIONAL AFFAIRS AFFECTING THE UNITED STATES

UNITED STATES RELATIONS WITH LATIN AMERICA

By Graham H. Stuart

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GOOD NEIGHBOR POLICY

It will be remembered that President Roosevelt announced shortly after his inauguration in 1933 that he would dedicate the United States to the ''policy of the good neighbor.'' During the year 1934 he gave proof that he meant exactly what he said. In fact, by a series of concrete acts, President Roosevelt and Secretary Hull have made the past year an outstanding one in their successful efforts to bring about more friendly relations between the United States and her Latin American neighbors.

The work of Secretary Hull in the Montevideo Conference in December, 1933 and President Roosevelt's statement of Dec. 28, 1933 before the Woodrow Wilson Foundation that the definite policy of the United States from now on is one opposed to armed intervention made a most auspicious beginning. In fact at the close of the Montevideo Conference the President was so encouraged at the friendly attitude manifested towards the United States that he felt justified in stating that ''a better state of feeling among the neighbor nations of North and Central and South America exists today than at any time within a generation.''

NEW COMMERCIAL AGREEMENTS

At the instigation of Secretary Hull the Montevideo Conference had adopted unanimously a comprehensive program specifically calling for the negotiation of agreements reducing or removing all manner of obstacles to international trade. In order to obtain concrete results as quickly as possible Secretary Hull decided that bilateral reciprocity commercial agreements between the United States and as many Latin American Republics as were interested should be worked out immediately. The problem was simplified in the United States through an Act of Congress of June 12, 1934 which authorized the President to sign reciprocity commercial agreements without submitting such arrangements to the Senate for its approval.

Ever since 1902 certain preferential duties had been reciprocally granted by the United States and Cuba, but the recent high tariff acts of the United States had practically nullified this advantage. On Aug. 24, 1934 a reciprocal trade agreement was signed between the two countries which made a very substantial reduction in existing tariffs. Cuban sugar which in 1932-33 paid a duty of two cents a pound would pay only 9/10 cent under the new agreement. The duty on Cuban rum was reduced from $4.00 to $2.50 a gallon. Considerable reductions in duties were also made in tobacco and fresh fruits. In return the United States secured substantial reductions on the duties on its exports of food stuffs, textiles, machinery and automobiles, wood and lumber and many other articles. The tariff on American lard was reduced some 300% and the rates on American automobiles 100%. American cigarettes which formerly cost the Cuban consumer 75c a package would now retail for about 25c. The new agreement in its first month of operation increased the exchange of commodities between the two countries over 60%.

The success of the Cuban agreement stimulated the negotiation of similar agreeements with other Latin American republics. On Aug. 31 the State Department gave notice of its intention to negotiate trade agreements with Brazil and Haiti. During the month of September a similar announcement declared that such agreements were to be negotiated with Colombia, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

LATIN-AMERICAN REACTIONS TO MUNITIONS INVESTIGATION

During the course of the Senate Committee investigation of the munitions industry a letter was read into the report from the official of an American company stating that graft was the real foundation of all South American business. Protests immediately began to come into the Department of State from Latin-American diplomatic representatives. Bolivia and Venezuela protested vigorously. Mexico objected formally to insinuations that President Rodriguez would favor the establishment of a Mexican aviation plant if he might profit thereby. Chile announced that American firms could no longer sell aviation material there and British firms were awarded contracts without consideration given to American bids. The Peruvian ambassador at Washington was authorized to start libel proceedings against the Curtiss-Wright interests. The foreign minister of Argentina went so far as to cable the Argentine ambassador in Washington to sue the United States Government for reparations for besmirching the reputation of Argentina and demanded that Secretary Hull discipline Senator Bone, the most outspoken member of the Senate Committee.

Secretary Hull after pointing out the inability of a cabinet member to discipline a Senator declared that no official in the American Government intended to give the slightest offense to any other government or its officials. Senator Nye, the Chairman of the Committee, also issued a statement pointing out that the placing of such material as the correspondence from foreign agents of American companies in the record did not necessarily imply the substantiation of the statements in these agents' documents nor any reflection of the opinion of the Committee. However it was decided henceforth to delete the names of foreign officials in the public hearings.

CUBA

Intervention under the Platt Amendment.—Undoubtedly the greatest success of the Roosevelt Administration during 1934 in carrying out its policy of the good neighbor has been in the improved relations with Cuba. Ever since the United States had obtained the independence of Cuba from Spain in 1898 the relations between the two governments had been governed by an arrangement incorporated both in a treaty and in the Cuban constitution known as the Platt Amendment. The basic provision of this arrangement and the one most vehemently opposed by the Cubans was the clause permitting the United States to intervene to maintain a stable government in Cuba. Under this arrangement the United States had intervened on several occasions, once to the extent of practically controlling the government for three years. But the United States became increasingly more hesitant to take advantage of right of intervention and the Cubans increasingly desirous of seeing the whole arrangement abrogated.

During the revolutionary period of 1932-33 the United States avoided even the slightest appearance of intervention. Both President Roosevelt and Secretary Hull stated publicly that the United States was prepared to welcome any government representing the will of the people of the republic and capable of maintaining law and order throughout the island. The government of Carlos Mendieta, which came into power after the downfall of the regime of Dr. Grau San Martin on Jan. 15, 1934, seemed to meet these requirements and was immediately recognized by the United States. President Roosevelt followed up his recognition by a statement that the United States was ready to commence negotiations for the modification of the Platt Amendment.

Abrogation of the Platt Amendment.—On March 30, 1934, Sumner Welles, Assistant Secretary of State, made a public address in Washington promising four constructive measures to help Cuba: (1) a fair sugar quota; (2) a new commercial treaty; (3) stimulation of trade by utilization of the new Export and Import Bank, and (4) a modification of the permanent treaty with Cuba. Two months later, May 29, 1934, the fourth and in the eyes of the Cubans the most important of these steps was taken when a new treaty of relations between the United States and Cuba was signed abrogating the Platt Amendment. In transmitting this new treaty to the Senate for its approval President Roosevelt pointed out that the contractual right of the United States to intervene in Cuba was abolished as well as the rights involving participation in the determination of such domestic policies as those relating to finance and sanitation. ''By the consummation of this treaty,'' he declared, ''this Government will make it clear that it not only opposes the policy of armed intervention but that it renounces those rights of intervention and interference in Cuba which have been bestowed upon it by treaty.''

Provisions of the Treaty.—The provisions of the new treaty were exceedingly brief. Article 1 abrogated the Treaty of 1903, that is to say, the Platt Amendment. Article 2 validated all acts of the United States in Cuba during its military occupation up to May 20, 1902. Article 3 maintained the arrangement for the naval station of the United States at Guantanamo. Article 4 permitted a reciprocal suspension of communications between certain designated ports in case of the outbreak of a contagious disease. The Senate approved the treaty two days after it was signed, an example of speed almost without precedent for a controversial question in that deliberate body. Ratifications between the two governments were exchanged on June 9, and a new relationship of absolute equality between the two governments was ushered in.

HAITI

As a further indication of his intention to make his acts conform to the sentiments of his good neighbor policy, President Roosevelt decided to withdraw the American marines from Haiti. An executive agreement had been signed Aug. 7, 1933 by representatives of the two countries providing that the American officers training the Haitian constabulary should turn the Garde d'Haiti over to the Haitian officers on Oct. 1, 1934 and within 30 days from that time the American Marine Brigade comprising some 850 officers and men should be withdrawn.

During the year 1934 President Vincent of Haiti visited Washington and his visit was returned by President Roosevelt. As a result it was decided to withdraw the marines earlier than the original time set. On Aug. 1, 1934 the command of the Garde d'Haiti was formally turned over to a Haitian officer and within a fortnight the last marine had left the soil of Haiti. As a token of friendliness, President Roosevelt acting under authority conferred by Congress made a gift to the Haitian Government of a considerable amount of material and property belonging to the marine and naval units which the Haitian government felt would be valuable and useful to it.

A telegram from President Vincent to President Roosevelt the day of the withdrawal expressed his gratitude and that of the people of Haiti ''for your generous and intelligent policy of the good neighbor which has affectionately aided me in accomplishing national liberation.''

MEXICO

The relations between the United States and Mexico continued to be very friendly throughout the year, due at least in part to the very able handling of the diplomatic relations in Mexico City by Ambassador Daniels. His refusal to disapprove in any way the anti-clerical movement in Mexico and a public statement approving the educational efforts of the Mexican Government brought about a wholly unwarranted condemnation of his attitude by certain Catholic organizations in the United States. On the constructive side he was able to negotiate two new claims treaties to supersede the conventions signed in 1923. The two new agreements were signed in Mexico City, April 24, 1934 and covered claims amounting to over $1,000,000,000. The first agreement provided for the settlement *en bloc* of the so-called revolutionary claims of 1910-1920. The second provided for a committee to examine and appraise all other claims within two years.

CENTRAL AMERICA

Recognition of El Salvador.—The relations of the United States with Central America were simplified by the denunciation on the part of the Central American Republics of the Treaty of Peace and Amity of 1923 which prohibited the recognition of governments which had obtained control of the state by force. Although the United States was not a signatory of this treaty it had scrupulously adhered to the policy laid down. After its denunciation, however, the United States took advantage of the new situation to recognize the government of President Martinez of El Salvador on Jan. 26, 1934.

Nicaragua.—The most serious impediment to the friendly relations between the United States and Nicaragua had long been the revolutionary leader Sandino. It was estimated that he cost the United States Marine Corps over 130 lives and five and one-half years of arduous work. His followers had been demobilized under an agreement reached in February, 1933, but some trouble regarding the administration arose with the National Government. Invited to discuss the matter with President Sacasa, he came to Managua and attended a dinner given by President Sacasa in his honor on Feb. 21, 1934. As he was leaving the palace grounds both Sandino and his brother were seized and executed by guardsmen. An investigation by the government to track down the murderers was unsuccessful.

SOUTH AMERICA

The War in the Chaco.—One of the difficult questions of the year for the Roosevelt Administration was the attitude to be taken in regard to the sanguinary war raging in the Chaco region between Bolivia and Paraguay. A brief truce had been obtained while the Pan-American conference was being held at Montevideo, but after the Conference was over the struggle became even more bitter than before. The United States had cooperated on various occasions to bring about a cessation of the conflict by offering its good offices in conjunction with other Latin-American powers, but to no purpose. Since more drastic measures were needed, President Roosevelt had a joint resolution introduced into Congress imposing an embargo on the sale of munitions of war to either Bolivia or Paraguay, and conferring the necessary authority upon the President to enforce it. The two houses of Congress passed the resolution on May 28 without a dissenting vote.

Arms Embargo.—On the same day that the resolution was passed, President Roosevelt issued a proclamation prohibiting the sale of arms and munitions of war in the United States to the two powers warring in the Chaco, and giving warning that all violations would be vigorously prosecuted. On June 1 the Bolivian minister protested against this action on the ground that it violated the commercial treaty of 1858 and also because it was unjust to Bolivia since Paraguay could still receive munitions *via* the international waterway—the Parana River.

Secretary Hull in his reply pointed out that the provisions of the commercial treaty related to import and export while the resolution prohibited the sale of munitions. Furthermore since the prohibition was identical for both governments he could not see that the benefits of an international waterway could benefit Paraguay. In conclusion he declared, "the government of the United States has dedicated itself to the policy of the good neighbor. It would be in the highest degree inconsistent with that policy that arms and munitions of war manufactured in the United States should continue to be sold for the purpose of assisting in the destruction of the lives of our two sister republics of Bolivia and Paraguay . . ."

The Bolivian government then asked that unfulfilled contracts entered into before the passage of the resolution should be completed. The United States, conceding the justice of this request, examined all the contracts and where the manufactured products were practically completed or ready for shipment the contracts were allowed to be carried out while in cases where merely the order had been received and no substantial work as yet been done the order was cancelled.

Arbitration Efforts.—On July 30 the Governing Board of the Pan-American Union under the chairmanship of Secretary of State Hull took the unprecedented action of adopting a resolution calling upon neutral American governments to indicate their attitude on unified action to bring the Chaco conflict to a close through arbitration. However, several efforts both by the American states and the League of Nations were wholly unsuccessful. At the close of the year the continued success of Paraguay and a change in government in Bolivia indicated a possible settlement by substantial concessions on the part of Bolivia.

UNITED STATES TREATIES

By Denys P. Myers

Director of Research, World Peace Foundation

TREATY POLICY

Marked changes occurred in the treaty policy of the United States in 1934. The distinction that, whereas laws are made in pursuance of the Constitution, treaties are made "under the authority of the United States," suddenly has been put into practice in multilateral relations. Toward Latin America the policy of the "good neighbor" has been usefully exemplified, and a new flexibility in negotiation has appeared.

ECONOMIC

Reciprocal Trade Agreements. — The Congress, by the tariff act of June 12, authorized the President to negotiate and to put into force reciprocal trade agreements altering legal rates within a 50% limit. The executive agreement on reciprocal trade with Cuba was signed at Washington Aug. 24 and became effective Sept. 3 for three years. The result of a very careful review of the products of the two countries, its provisions and schedules, are intended to increase trade without dislocating the respective national markets. Negotiations and comprehensive studies to the same end were early in December proceeding with 12 countries—Belgium, Brazil, Colombia, Costa Rica, Guatemala, Haiti, Honduras, Nicaragua, El Salvador, Spain, Sweden and Switzerland.

Most-favored-nation Clause.—The Pan-American Union opened for signature on July 15 an agreement to refrain from invoking the obligations of the most-favored-nation clause in respect of certain multilateral conventions, which the United States led in signing.

Multilateral Commodity Agreements.—Of the two multilateral commodity agreements negotiated alongside the London Monetary and Economic Conference, that on wheat worked with difficulty from its signature on Aug. 25, 1933, and in 1934 its quota arrangements gave trouble. The silver agreement between the United States, Australia, Canada, China, India, Mexico, Peru and Spain signed July 22, 24, 26, 1933, became effective April 24, 1934; China's position under it created some difficulty and the United States rendered it some diplomatic assistance.

TRADE IN ARMS

On June 15 the Senate gave its advice and consent to ratification of the convention for the supervision of the international trade in arms and ammunition and in implements of war, Geneva, June 17, 1925. That action was part of a considerable governmental activity and examination concerning that trade. Since the signing of the St. Germain convention of Sept. 10, 1919, the world has been trying to get along with supervision of trade in arms and was stalled by the refusal of the United States to play ball. For many years refusal was attributed to a constitutional inability to control factories within the states by treaty. That excuse was retired in 1932. Since June the United States delegation at Geneva took a vigorous lead in proposing a new and more fundamental scheme for controlling private and state manufacture of and trade in arms, seemingly with good prospects of success. A new instrument will probably be the one to come into eventual force.

INTERNATIONAL LABOR ORGANIZATION

A new direction of foreign relations was the acceptance of membership in the International Labor Organization on Aug. 20. This makes the United States a party to an autonomous organization of the League of Nations, without involving any obligations under the Covenant. Membership does involve the "rights and obligations provided for in the constitution of the Organization," which is still cited as Part XIII (Articles 378-427) of the Treaty of Versailles and the corresponding parts of the other treaties of peace. The action is important for two reasons. It commits the United States to taking a continuous part in the international formulation of social legislation, a new departure. It emphasizes the President's authority to conduct negotiations. The constitution of the International Labor Organization sets up machinery culminating in a conference which produces draft conventions for the ratification of the governments or alternative attainment of the standards they provide. Participation in its program is, therefore, only a form of negotiating conventions up to a point equivalent to affixing signatures. This was explicitly recognized in the Congressional resolution of June 19 authorizing the President to accept membership in the Organization.

LATIN-AMERICAN RELATIONS

The Seventh International American Conference adopted a resolution on Dec. 16, 1933, calling on all American states to adhere to all the peace instruments open to them, several of the Latin-American states being remiss in that respect. In that connection the United States ratified on June 29 the additional protocol to the general convention of inter-American conciliation which was signed at Montevideo Dec. 26, 1933, and on June 27 definitely adhered to the anti-war treaty of non-agression and conciliation signed at Rio de Janeiro Oct. 10, 1933. On the general treaty of inter-American arbitration of Jan. 5, 1929, which the United States has not ratified, action depends upon revision of inept reservations adopted by the Senate Jan. 19, 1932.

The ratification of the convention on the rights and duties of states signed at Montevideo Dec. 26, 1933, was deposited July 13 with a reservation; it pronounces against intervention in other countries. The Montevideo convention on the nationality of women came into force in October between the United States and Chile.

The policy of the "good neighbor" was given striking application by the signing at Washington May 29, 1934, of a treaty of "relations" with Cuba, which abrogated the treaty of May 22, 1903, and hence abolished the Platt Amendment to the Cuban Constitution. The naval station lease at Guantánamo continues. Ratifications were prompt and the treaty was in force on June 9. The Haitian chapter of American foreign relations ended in an executive agreement of July 24 by which the marine and naval forces were withdrawn on Aug. 15 instead of Oct. 1. Two executive agreements of May 10 and July 21-23 provide for a military mission to assist Brazil in developing a coast artillery system in a 2-year period; this is the first instance in which the arrangement for a detail of officers under the act of Congress of May 19, 1926, was made public.

REGISTRATION OF TREATIES

On January 22,-23, 1934, an exchange of notes at Geneva arranged for the registration and publication by the Secretariat in the League of Nations *Treaty Series* of all United States treaties, without expense to it and without the obligation specified in Article 18 of the Covenant. The registration of United States treaties has set a record for promptness.

OPEN DOOR IN CENTRAL AFRICA

The United States was a signatory of the convention of St. Germain of Sept. 10, 1919, superseding the general act of Berlin and declaration of Brussels of 1885-90 on the open door in a wide African region; the President ratified it April 11, 1930, and the ratification became effective Oct. 29, 1934, on full acceptance of a reservation as to the form of arbitration applicable to disputes. After 50 years American commercial rights in Central Africa are defined by treaty.

EXTRADITION

The United States deposited on July 13 its ratification of the extradition treaty signed at Montevideo Dec. 26, 1933, the first multilateral instrument of the kind. Supplementary treaties making offenses against bankruptcy laws extraditable crimes came into force with Austria, Finland and Sweden and were signed with Bulgaria, Estonia, Latvia, Lithuania and San Marino.

OTHER INSTRUMENTS IN FORCE

Among other treaties or executive agreements entering into force in 1934 were: The universal postal convention, Cairo, March 20, 1934; convention for unification of certain rules relating to international transportation by air, Warsaw, Oct. 12, 1929; protocol increasing quotas payable in support of the International Institute of Agriculture, Rome, April 21, 1926; protocol and convention for liquidating general and special claims, respectively, against Mexico, April 24, 1934; treaty of friendship, commerce and consular rights with Finland, Feb. 13, 1934; declaration extending the Polish commercial treaty to the Free City of Danzig, March 9, 1934; load-line convention with Canada, Dec. 9, 1933; an arrangement with the Irish Free State for relief from double income tax on shipping profits; arrangements on amateur radio stations with Canada and Peru; arrangements concerning air navigation and pilot licenses to operate civil aircraft with Denmark and Norway, and concerning the reciprocal recognition of certificates of airworthiness for imported aircraft with Denmark, Norway and Great Britain.

CAUSES OF DEATH

Delegates of 22 states at London signed with immediate effect on June 19 an international agreement relating to statistics of causes of death. It gives conventional form to the International List of Causes of Death which since 1900 has been a standard classification for vital statistics and has been kept up to scientific date by revisions in 1909, 1920 and 1929.

INTERNATIONAL CONFERENCES

By William T. Stone

Foreign Policy Association

NATIONALISTIC TRENDS

The year, 1934, was marked by a continuation of the trend toward national self-sufficiency which had become apparent since the onset of the world depression in 1929. During the ten years following the World War nations had been inclined to stress their mutual interdependence and to attempt the solution of their common problems through the direct contact and coordinated action afforded by international conferences. When confronted with economic stringency and its inevitable political repercussions, however, many national governments sought to minimize the resultant domestic strains by measures for immediate self-preservation, with scant regard for the interests of the larger international community.

DIFFICULTIES OF CONFERENCE METHOD

The difficulty of adjusting international problems through the conference method was increased by this trend, which was marked by trade and tariff barriers, exchange restrictions and an ascending spiral of armament expenditures. The Conference for the Reduction and Limitation of Armaments, which met at Geneva with such high hopes in February, 1932, continued its existence through 1934 by the doubtful process of repeated adjournment. By the end of the year the prospect for accord in the near future had been reduced to a limited project, sponsored by the United States, for control of the manufacture and trade in arms and ammunition, budgetary publicity and international supervision. The London naval conversations terminated late in December with Japan's denunciation of the Washington Treaty and the hostilities between Bolivia and Paraguay continued unabated in the Gran Chaco despite the efforts of the League of Nations and the countries of the American continents.

Notwithstanding these setbacks, a measure of confidence in the post-war machinery of peace was restored by the effectiveness of the League of Nations in dealing with the dangerous Jugoslav-Hungarian dispute and the arrangements for the Saar plebiscite. The entrance of the Soviet Union into the League during the September Assembly served to restore some of the universality it had lost with the exodus of Germany and Japan and strengthened faith in the collective peace system.

LONDON NAVAL CONVERSATIONS

While the United States participated in few international conferences of political or economic importance in 1934, the variety of its contacts with the outside world was emphasized by the 50 odd congresses and conferences to which delegates were appointed by the government. Of outstanding importance was the series of preliminary naval conversations between Great Britain, the United States and Japan, held at London from June 18 to July 19, and from Oct. 18 to Dec. 19, 1934. On both occasions the American delegation was headed by Ambassador Norman H. Davis, chairman of the delegation to the Geneva Disarmament Conference, who was accompanied at the second meeting by Admiral William H. Standley. The American and British delegations, taking the position that the equilibrium worked out in the Washington treaties of 1922 should be continued, favored a progressive reduction in tonnage on the basis of existing ratios and steadfastly declined to accept Japan's demands for naval parity. Unable to resolve the fundamental differences which emerged during the conversations, the meeting adjourned with little prospect of agreement in the immediate future. On Dec. 29, the Japanese Government formally denounced the Washington agreement, thus serving notice that the pact will terminate on Dec. 31, 1936. As the London Naval Treaty automatically expires on the same date, the powers were confronted with the difficult task of finding a new basis of agreement during the intervening two years, or facing the threat of renewed naval competition.

U. S. COOPERATION WITH LEAGUE OF NATIONS

The United States continued to cooperate closely with various agencies of the League of Nations during the year, 1934. The American delegation to the League Disarmament Conference took the initiative in proposing a separate convention for the regulation of the manufacture and trade in war materials and cooperated with such technical committees as continued their efforts throughout the year. Representatives of the United States collaborated with League committees created to follow the Leticia controversy and the Manchuria dispute. American representatives also served with a committee on technical cooperation with China and with League organizations dealing with the traffic in opium and dangerous drugs. On the other hand, American cooperation with the League Advisory Committee at Geneva dealing with the Chaco dispute was limited to maintaining ''informal contact'' for purposes of information.

INTERNATIONAL AGRICULTURAL MEETINGS

The Roosevelt Administration participated actively in efforts to stabilize world agricultural conditions. At the Twelfth General Assembly of the International Institute of Agriculture, held in Rome, Oct. 22-27, 1934, the American delegation, under the leadership of Rexford G. Tugwell, Under Secretary of Agriculture, suggested the eventual attainment of a planned economy world-wide in scope. The United States was also represented at meetings of the International Wheat Advisory Committee and at a preliminary meeting on the coordination of production and marketing of sugar at London.

INTERNATIONAL CONFERENCES AND CONGRESSES AT WHICH THE UNITED STATES WAS REPRESENTED OFFICIALLY DURING 1934

Meeting of the Special Committee of the Council of the League of Nations on Technical Cooperation with China, Geneva, January 16, 1934.

Meeting of the Advisory Committee set up by the Council of the League of Nations to Follow the Situation in the Dispute Between Colombia and Peru, Geneva, January 19, 1934.

Third Session of the International Wheat Advisory Committee, London, January 29-February 2, 1934.

Tenth International Postal Congress, Cairo, February 1-March 20, 1934.

Preliminary Meeting on the Coordination of Production and Marketing of Sugar, London, March 5-10, 1934.

Third International Congress of Technicians and Chemists in the Agricultural Industries, Paris, March 26-31, 1934.

Fourth Session of the International Wheat Advisory Committee, Rome, April 5-17, 1934; London, May 7-11, 1934.

Ninth International Congress of Pure and Applied Chemistry, Madrid, April 5-11, 1934.

Meeting of Experts to Consider the Technical Aspects of a Draft International Convention Having as Its Object a Unified System of Presenting the Results of the Analysis of Wines, Rome, April 9-11, 1934.

Meeting of the Advisory Committee Set Up by the Council of the League of Nations to Follow the Situation in the Dispute Between Colombia and Peru, Geneva, April 12, 1934.

International Congress of Education and Instructional Cinematography, Rome, April 19-25, 1934.

Tenth World's Dairy Congress, Rome and Milan, April 30-May 6, 1934.

International Conference for the Purpose of Revising the Industrial Property Convention Signed at the Hague November 6, 1925, London, May 1-June 2, 1934.

Second Meeting of the Governing Body for Assistance to Refugees Coming From Germany, London, May 2-3, 1934.

Tenth International Congress of Actuaries, Rome, May 4-9, 1934.

Meeting of the Advisory Committee Set Up by the Assembly of the League of Nations to Follow the Situation in the Far East, Geneva, May 15-16, 1934.

Meeting of the Special Committee of the Council of the League of Nations on Technical Cooperation with China, Geneva, May 17, 1934.

Eighteenth Session of the Advisory Committee of the League of Nations on the Traffic in Opium and Other Dangerous Drugs, Geneva, May 18-June 2, 1934.

Meeting of the Advisory Committee Set Up by the Council of the League of Nations to Follow the Situation in the Dispute Between Colombia and Peru, Geneva, May 19, 1934.

Eighteenth Session of the International Labor Conference, Geneva, June 4-23, 1934.

Sixteenth International Agricultural Congress, Budapest, June 13-20, 1934.

Preliminary Naval Conversations, London, June 18-July 19, 1934.

Fourth Session of the International Office of Military Medical Documentation, Liege, June 27-30, 1934.

Eighth International Ornothological Congress, Oxford, July 2-7, 1934.

Seventh Congress of the International Seed-testing Association, Stockholm, July 3-7, 1934.

Forty-fifth Congress of the Royal Sanitary Institute, Bristol, July 9-14, 1934.

Third International Conference on Public Instruction, Geneva, July 16-30, 1934.

Fifth International Congress of Surveyors, London, July 18-21, 1934.

International Conference of Local Authorities, Lyon, July 19-22, 1934.

International Congress of Anthropological and Ethnological Sciences, London, July 30-August 4, 1934.

International Geographical Congress, Warsaw, August 23-31, 1934.

Seventh International Roads Congress, Munich, September 3-8, 1934.

Ninth Conference of the International Union Against Tuberculosis, Warsaw, September 4-6, 1934.

Fourth International Congress of Byzantine Studies, Sofia, September 9-16, 1934.

Second Inter-American Conference on Education, Santiago, Chile, September 9-16, 1934.

Third Meeting of the International Technical Consulting Committee on Radio Communications, Lisbon, September 22-October 10, 1934.

Ninth Annual Session of the International Technical Committee on Aerial Legal Experts, Berlin, September 26-29, 1934.

Meeting of the Special Committee of the Council of the League of Nations on Technical Cooperation with China, Geneva, September 28, 1934.

Third International Congress of the History of Science, Oporto, Coimbra and Lisbon, September 30-October 6, 1934.

Ninth Congress of the Far Eastern Association of Tropical Medicine, Nanking, October 2-8, 1934.

First Ibero-American Oceanographic Conference, Madrid, October 12, 1934.

Preliminary Naval Conversations, London, October 18, 1934.

Fifteenth International Red Cross Conference, Tokyo, October 16-29, 1934.

Twelfth General Assembly of the International Institute of Agriculture, Rome, October 22-27, 1934.

Third Meeting of the Governing Body for Assistance to Refugees Coming From Germany, London, November 1-2, 1934.

Ninth Pan-American Sanitary Conference, Buenos Aires, November 12-22, 1934.

Nineteenth Session of the Advisory Committee of the League of Nations on the Traffic in Opium and Other Dangerous Drugs, Geneva, November 15-28, 1934.

Fourth International Congress and Exposition of Photogrammetry, Paris, November 16-December 2, 1934.

Fifth Session of the International Wheat Advisory Committee, Budapest, November 20-December 1, 1934.

Second Pan-American Conference on Eugenics and Homoculture, Buenos Aires, November 23-25, 1934.

THE PEACE MOVEMENT

By Florence Brewer Boeckel

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THE PHILOSOPHY AND POLITICS OF PEACE

Strength of the Movement. — At the close of 1934, the American peace movement occupied a stronger position than ever before. To speak of the strength of the peace movement when that strength is not sufficient to accomplish its purpose, and when preparations for war are increasing, may seem fallacious. But if the peace movement is to be correctly judged, it must be recognized for what it is, the growth of an idea. There is no question that the idea of a world without war has within the last year taken a wider and firmer hold on men's minds.

Purposes and Methods.—Much of the current skepticism in regard to the peace movement is due to the fact that its two tasks—closely related and inter-acting, yet distinct—have been confused. The final abolition of war, which can come about only with the acceptance of a fundamental change in values, is one task; the prevention of war in the immediate future is another. The peace movement, itself, has not always distinguished these purposes or the different methods which must be employed in their achievement. During the last year, however, the movement has tended to develop in the two necessary directions; it has deepened its philosophical approach to the general problem of the abolition of war and the war system, and it has strengthened its organization for immediate political action designed to curb forces now making for war.

Munitions Investigation. — The Senate investigation of the munition industry, the outstanding event of the year in the peace field, has encouraged both types of activity. The facts revealed in the investigation have turned men's thoughts toward the incompatibility of the whole war system with the principles of democratic government, for they have shown the extent to which foreign policy is influenced by the military branches of the government, in many instances in a direction contrary to that determined upon by the Government and supported by the people. The investigation has further shown need for greater immediate political activity if headway is to be made against the politically active forces which favor war and increased preparations for war.

The resolution creating the committee was passed by the Senate on April 12 with an appropriation of $15,000, later increased to $50,000. Senator Gerald P. Nye of North Dakota was made chairman, with Senators Barbour of New Jersey, Bone of Washington, Clark of Missouri, George of Georgia, Pope of Idaho, and Vandenberg of Michigan as members. The committee through a corps of 60 investigators, under the direction of Stephen Raushenbush, devoted the summer months to collecting information, and in September began hearings which attracted worldwide attention.

Effort for Control of Arms Traffic.—An immediate result of this Senate investigation was the announcement on Nov. 13 by the Secretary of State that the United States was seeking, through the Disarmament Conference, the negotiation of a convention to provide effective control of the traffic in and manufacture of arms. The continued pressure of the American peace forces for some effective action by the Disarmament Conference was undoubtedly an influence in the Government's determination to accomplish this step in the disarmament program. In addition to support of the Disarmament Conference, there has been consistent opposition to increases in the American naval and air forces.

REFERENDUM ON LEAGUE OF NATIONS MEMBERSHIP

Along with its demand for reduction in arms, the peace movement has urged, as a step toward increasing world security and stability, American membership in the League of Nations. Under the leadership of the League of Nations Association, a petition requesting the government to state the terms on which it would join the League has been nationally circulated during the year. In the fall elections, a referendum on membership in the League with reservations against participation in war except by vote of Congress, was held in 115 towns in 36 Congressional Districts of Massachusetts. Sixty-two per cent of the vote favored membership; only four towns voted against membership. The districts covered included both industrial cities and rural towns.

A FOUR-POINT LEGISLATIVE PROGRAM

Objectives.—The immediate legislative objectives of the organized peace forces is indicated by the four-point program adopted in October by the National Peace Conference, composed of 22 national organizations: 1. Statement by the United States Government of the terms on which it would be willing to join the League of Nations. 2. Government support for carrying through the Nye investigation, and international and national control of the manufacture and trade in arms. 3. Energetic efforts by our Government for limitation and reduction of armaments. 4. Immediate ratification of the World Court Protocols.

Findings of National Council for Prevention of War. — Additional topics holding the attention of the peace movement are included in the findings of the annual meeting of the National Council for Prevention of War, a member of the National Peace Conference and itself a federation of 31 cooperating organizations: Revision of the military and naval policies of the United States to conform with the principle that no nation should "permit any of its armed forces to cross its own borders into the territory of another nation"; repeal of the Oriental Exclusion Act and the placing of Oriental peoples on the quota basis; amendment of Philippine Independence Act to provide for reciprocal tariff arrangements, abandonment of the naval base, and neutralization of the Islands; adjustment of tariff and financial policies to conform with the principle of world interdependence; opposition to military training in educational institutions, and opposition to the universal draft plan.

Measures Adopted.—In this connection, it is of interest that five of the measures urged by the National Council for Prevention of War in the findings of its 1933 annual meeting had, by 1934, been adopted: the repeal of the Platt amendment; recognition of Russia; embargo on the shipment of arms to Bolivia and Paraguay; senatorial investigation of the armament industry, and membership in the International Labor Organization.

PEACE ACTION COMMITTEES

In addition to reaching a clearer definition of its objectives and wider agreement upon them, the peace movement during the last year has very generally adopted a plan of action based on local Peace Action committees, organized by political units. This development led to a greatly increased interest among college students and young voters. The first Peace Action conference was held at Duke University in the Spring and was attended by representatives of young people's groups from nine States. Further evidence of the hold which the peace idea is taking on the young people of the nation is evident in the opposition in colleges and universities to compulsory military drill.

COMMITTEES AGAINST WAR AND FASCISM

The chief division of thought in the peace movement, at present, is evidenced in the development of committees against war and fascism, which hold that the abolition of the profit system is an essential part of the anti-war movement. The Women's International League for Peace and Freedom has agreed to cooperate with these groups during a trial period of one year. Others of the established peace organizations have, in general, taken the position that the development of a public opinion against war, which will compel the abandonment of the war method for the attainment of the objectives of whatever economic or political system exists, is the primary necessity.

ORGANIZED PUBLIC OPINION

Labor Position. — The best evidence of the fact that the thought of the people is advancing is to be found in the resolutions adopted during the year by organized groups, representing the farmers, labor, educators, women and the churches. William Green, at the national convention of the American Federation of Labor, declared "the workers of the world must unite solidly to prevent war. . . . We cannot allow those with lust for power to command masses of people to march out on the battlefield and destroy each other."

Church Program.—The Executive Committee of the Federal Council of Churches, representing the Protestant churches of America, adopted an eight-point program which included support of the policy of never sending military forces across national boundaries; embargoes on munitions and credits to nations that do not abide by this principle; control of the munitions industry; withholding of appropriations for increased naval building programs; abolition of aggressive weapons including military and naval planes; international supervision of commercial aviation; membership in the World Court; a statement of terms for membership in the League; reciprocal tariff agreements, and international consultation on economic issues.

Women's Organizations. — The eleven women's organizations represented in the National Committee on the Cause and Cure of War support reduction of armaments, embargoes on arms, investigation of the munition industry, membership in the World Court and statement of terms for membership in the League.

The National Education Association, assembled in annual meeting, declared "war is the greatest menace to civilization"; proposed as a step toward its elimination the prohibition of profits in the manufacture and sale of munitions and other war equipment; declared that "children should be taught the truth about war, its costs in human life and ideals and material wealth," and urged that its official journal carry "frequent articles concerning war, its costs and consequences."

National Grange. — The National Grange's 1934 program for the promotion of peace calls for adherence by the United States to the World Court with "protective reservations," government control of arms and munitions manufacture and an embargo on the shipment of these materials to other nations; conscription of wealth in wartime, and an appropriation by Congress to further a munitions industry investigation.

Effect on Government Action.— The public opinion represented in these resolutions is already having its effect on government action, in spite of the fact that the policies which result are sharply contradicted by others rising out of the continuation of the war system. A decision as between the two programs cannot be long delayed.

THE LEAGUE OF NATIONS AND ASSOCIATED AGENCIES

By The Associates

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GENERAL

American relations with the League of Nations during 1934 were intensified as a result both of the growing strength and vitality of the League and of the slow evolution of American foreign policy out of the 1920 isolationist period. On the one hand, despite the most troubled world conditions, the League appreciably consolidated its central place in international life, not only through normal development, but also through more striking actions such as the prevention of war in the Balkans over the Marseilles murders and the organization of the first international force for the Saar Plebiscite. On the other hand, the United States both strengthened or extended its many specific activities with the League, and at the same time began its first permanent contractural relationships through formal entry into the International Labor Office, acceptance of the practice of treaty registration with the

League, and construction of its arms traffic control proposal around the League machinery. As the year drew to a close, Government circles were reported as considering the even wider question of America's whole general relationship to the League, especially as to her policy of neutrality and freedom of the seas.

DISARMAMENT

American cooperation in the League's disarmament work continued during 1934 to be as complete as possible in the circumstances. Not only did the Government on several occasions specifically re-state its desire for a general reduction of armaments, but on May 29 Ambassador Davis emphasized to the General Commission of the Disarmament Conference America's willingness "to join with other nations in conferring on international problems growing out of any treaties" to which it was a party. It was as regards the arms traffic, however, that American interest was most intense. Disclosures concerning the activities of munitions makers led not only to the appointment of a special Committee of Enquiry by the Senate but also to action within the League. In June, Hugh R. Wilson presented a detailed project on the subject which was followed by an even more complete draft treaty in November. This established a thorough system of national and international control of armaments manufacture, involving the licensing of all firms, publicity of all orders and shipments, establishment of an import and export license system and control through a League body. The project was cast in independent form so that it might be approved without waiting for a general Disarmament Convention. The suggestion was warmly received and scheduled for discussion in January.

ECONOMICS, FINANCE AND TRANSIT

While the League was attempting to regain its balance after the shocks of the Economic Conference and the surge of economic nationalism which followed, and the United States was working its way to a new concept of its place in world life, the American Government participated in various meetings during 1934, arising out of the 1933 London Conference. On April 5, an American delegation attended the third session of the International Advisory Committee to supervise the Wheat Agreement, which promises ultimately to lead to world control. On April 30, the Silver Agreement, of which the United States had been charged with securing the necessary ratifications, came into force. Previously, on March 5, at a meeting to consider the production and marketing of sugar, the United States representative took a leading part, stating that an increase in the price and consumption of sugar was so important to his Government that it was prepared to take unilateral action. On April 9, Niels I. Nielsen attended a meeting to draft an international convention for a unified system of presenting the results of the analysis of wines.

On the unofficial side, Willard Thorpe attended the meeting of the Economic Committee in July, which accepted his suggestion that rubber be added to the list of products for which the London Conference had recommended a study of the methods of coordinating production and trade. Dana Durand was reappointed by the Council to the Committee of Statistical Experts for three years, attending a meeting in April, which drew up a list of 35 basic commodities for completing recording of foreign trade by countries of provenance and destination. Dr. Mitchell B. Carroll, formerly of the Department of Commerce and the League Secretariat, was also appointed to the Fiscal Committee, which had prepared a draft Convention on Double Taxation duly accepted by the United States as a basis for a multilateral agreement. Royall Tyler continued to serve as representative of the Financial Committee at Budapest in connection with the Hungarian loan.

The American Government replied to several League questionnaires forecasting further international agreements in transit matters, and was represented by Capt. H. G. Keppler at a meeting in November to draw up the bases for an international Convention to obviate damage caused to coasts and to fish and bird life by oil discharges at sea from motor vessels.

FAR EAST

The United States was represented by Hugh R. Wilson at the meeting of the Assembly Advisory Committee to consider the question raised by the British Government as to whether the establishment of postal relations with Manchukuo would affect the accepted policy of non-recognition. Mr. Wilson participated in the drafting of the recommendations to Governments, which held that the Manchukuo Department of Communications could not appeal to the provisions of the Universal Postal Convention and that relations between postal administrations and that Department should only be regarded as relations between one administration and another and not as relations between one Government and another. The State Department subsequently accepted these recommendations.

The United States was also represented by Ferdinand Mayer at the three sessions of the Council Committee for Technical Cooperation with China. The Report of the League Technical Agent in China was duly approved and forwarded to the competent technical organs of the League for action. Subsequently, the Committee on Intellectual Cooperation appointed Prof. James T. Shotwell to the Advisory Committee for the creation of a Bureau in Geneva to help Chinese intellectuals abroad. Similarly, Daniel W. Mead of Madison, Wis., was consulted as regards American views and cooperation in connection with the organization of a Committee of hydraulic engineers for the study of flood control in China.

PAN-AMERICAN UNION

The Resolution of the 1933 Montevideo Conference to refer to the 1936 Conference ''the study of the activities and methods of cooperation with other parts of the world by the Pan-American Organization'' was reflected in a formal proposal by the Colombian Delegation that the 1935 Assembly study the question of the ''concrete form to be given to the observations regarding the necessity of establishing a link between the League and the Pan-American Union.'' Emphasis was laid on the fact that these two agencies, the Union in the American sphere and the League in the universal sphere, had much to gain by close cooperation, and that, if such cooperation had existed, the scandals of the Chaco war would not have continued.

COLOMBIA-PERU

The Colombia-Peru dispute was brought to a complete and satisfactory settlement during 1934, largely because of the complete cooperation of all agencies working for peace. While the League Commission continued its administration of the distant territory of Laetitia far up the Amazon, throughout the first six months of 1934, peace negotiations were under way under Brazilian auspices at Buenos Aires. In January, the Council Advisory Committee, where Ferdinand Mayer represented the United States, was informed, that these negotiations were stationary. In April, with Mr. Wilson present for the United States, the Brazilian representative reported that they were progressing, and five weeks later, when the Committee met a third time, the Brazilian Foreign Minister cabled that ''complete and final agreement'' had been reached. On June 11, the final Treaty was communicated to the League, and on the 19th the President of the Laetitia Commission, wherein Major-General E. B. Winans had succeeded Colonel Brown, cabled: ''Territory handed over. Mission accomplished and Commission dissolved.''

BOLIVIA-PARAGUAY

This dispute was nowhere near so fortunate in its handling. The League's Committee of Enquiry, which had been warmly welcomed by Secretary of State Hull at the Montevideo Conference, continued in early 1934 its efforts to secure an agreement despite Paraguay's denunciation of the brief armistice. When, however, both parties refused to accept its proposals, the Commission returned to Geneva and in May issued an exceptionally strong report. Despite this, the parties still proved recalcitrant, and another effort for mediation, equally unsuccessful, was set under way by certain American states, including the United States.

During the May Council the British representative proposed that the embargo which had been under study be definitely brought into effect. Within 24 hours, the American Government introduced a Congressional Resolution authorizing the President "to prohibit by Proclamation the sale of any arms or munitions of war . . . to the countries engaged in the Chaco conflict." At the same moment the Council sent a telegram to 35 governments, including the United States, asking if they would be prepared to participate in such an embargo. Within the week, the American Government replied that the resolution had been passed "without a dissenting vote," and that a Presidential Proclamation had been issued making it immediately operative. A League report on Sept. 25 showed that 27 states, including the United States, had taken steps to enforce the embargo; that 3 other states were unreservedly ready to do so; that 4 more had agreed unconditionally, and that the 35th, Japan, had stated that, while it could not participate in any political action by the League, it had never exported arms to either country. Thus was established the League's first universal embargo.

Meanwhile the substance of the question moved towards a new climax in Geneva. In June, Bolivia invoked Article 15, paragraph 4, of the Covenant, requiring the Assembly to make a Report and Recommendations, as in the Sino-Japanese case. The Assembly duly established an Advisory Committee to draw up a Report for an Extraordinary session on Nov. 20. During the autumn, the cooperation of the United States and Brazil was earnestly sought. In order to facilitate it, a Sub-committee on Mediation was created, composed entirely of Latin-American delegates, and the United States was approached first informally as to participation in this committee and later formally to participation in the full committee. It replied, however, that "under the circumstances now existing," it did not deem the particular moment as opportune for collaboration, though it might reconsider later. The Comittee, nevertheless, succeeded in submitting a most complete plan, unanimously adopted by the Extraordinary Assembly. The main features called for a suspension of hostilities and measures of security to be overseen by a Neutral Commission, a Peace Conference at Buenos Aires to work out a definite settlement, and an Advisory Committee in Geneva to consider any broader aspects. The United States and Brazil were invited to cooperate with all three of these agencies. On Dec. 7, the United States accepted the first two invitations, stressing their American character, and declined the third, stressing its League character, although it declared itself willing to "maintain informal contact with the members of the Advisory Committee for purposes of information," if so desired. On Dec. 12, the Committee acknowledged this cooperation and agreed to the informal contact suggested.

LIBERIA

Early in the year, Liberia informed the League that it could accept only with the most sweeping reservations the plan for assistance which a League Committee, with American participation, had spent three years in working out. These reservations were not acceptable and the Council accordingly withdrew its offer, the British representative raising the question whether Liberia's mistreatment of natives did not justify her expulsion from the League. The British Government then announced its intention to negotiate further with the American Government, and the latter shortly sent H. A. McBride, Assistant to the Secretary of State, to Liberia to collect full information on present conditions there. Meanwhile, Liberia carried out parts of the League plan on her own, appointing a Sanitary Adviser and an Economic Adviser, making efforts for financial reform, and authorizing a mission to the United States to revise the Firestone Agreement.

THE SAAR

In June, when the League Council came to organize the Plebiscite in the Saar Valley, which the American Delegation at the Peace Conference had approved, it named as Technical Counsellor to the Plebiscite Commission Miss Sarah Wambaugh of Cambridge, former member of the League Secretariat, later engaged by the Peruvian Government as expert in the Tacna Arica plebiscite, and author of a standard book on plebiscites. This Plebiscite, set for Jan. 13, 1935, brought forth the League's first international force and promised to be the most complete expression yet attempted of the Wilsonian policy of self-determination. The Saar voted to reincorporate with Germany by a vote of 476,089, about 90% of the entire vote.

HEALTH

American cooperation in League health work, both official and unofficial, continued far reaching during 1934. In January the Council renewed for three years the appointment of Surgeon-General Cumming, Director of the United States Public Health Service, to the Health Committee, which later elected him Vice President. Dr. G. W. McCoy, Director of the National Institute of Health, attended the Biological Standards Commission in Copenhagen in August, and the Philippine Islands continued to cooperate with the Far Eastern Epidemiological Intelligence Bureau.

The most important unofficial cooperation was, as hitherto, that of the Rockefeller Foundation, which renewed for another three years the subvention which had made it possible to establish the League's work on a world-wide scale. At the same time, the Milbank Memorial Fund made a smaller grant for closer relations between the League Health Committee and the United States. Mr. Sydenstricker, of that Fund, gave the Health Committee information on public works undertaken in the United States in the field of hygiene as a measure of relieving unemployment, and Dr. E. M. Nelson of the Department of Agriculture and Prof. H. Steenbock of the University of Wisconsin attended the Second International Conference on Vitamins in June. Various American experts cooperated in a study of syphilis covering 30,000 cases in five typical countries, including the United States, while others continued to take part in the League's work on malaria. Leprosy studies in which the Leonard Wood Memorial in the Philippines had taken part, led to the creation of an International Leprosy Centre in Rio de Janeiro, having the League Health Committee as its Governing Body.

DANGEROUS DRUGS

American cooperation reached its most complete form in the League's anti-drug work. Stuart J.Fuller of the Far Eastern Division of the State Department was one of the most active members of the Opium Advisory Committee at both its May and November sessions, and Herbert May attended the four meetings of the Opium Central Board and the two sessions of the newly created Supervisory Body set up by the 1931 Convention on Opium Limitation. The United States is a party to this Convention, whereby the manufacture, export, import and consumption of dangerous drugs is regulated by an unprecedented international control by the Supervisory Body, which assesses world drug requirements on the basis of estimates submitted to Governments, and by the Opium Central Board, which is empowered to stop exports to countries which exceed those estimates.

SOCIAL AND HUMANITARIAN

The American Government transmitted several reports on questions under study by the Traffic in Women and Child Welfare Committees, although not represented at the 1934 session. Unofficially, however, Bascom Johnson, as Chairman, presented the report of the Commission of Enquiry into Traffic in Women in the Far East, and reports on two enquiries financed by American grants were discussed, one on the "Cinema and Youth," submitted by W. W. Charters on behalf of the Payne Fund, and one on an extended survey in various countries, including the United States, on moral and social dangers confronting childhood. In the penal field, the rules drawn up by the International Penal and Penitentiary Commission for the Treatment of Prisoners were transmitted by the American Government to all its prison officials as a workable and progressive set of minimum standards. James G. McDonald, originally appointed by the League Council, was warmly commended at the Assembly for his efforts as High Commissioner for German Refugees.

INTELLECTUAL COOPERATION

The American Government sent a delegation of ten members to the International Congress on Educational Cinematography, under the auspices of the League's Cinema Institute in Rome, and signed the International Convention on Customs Facilities for Educational Films. It found itself unable, however, to participate in Conventions for broadcasting in the cause of peace and for the repatriation of artistic, historical or scientific objects. Early in the year it nominated Robert T. Pell of the Paris Embassy as its representative in the Organizing Committee for the preparation of Press Conferences.

Unofficially, Prof. James T. Shotwell, Chairman of the American National Committee on Intellectual Cooperation, took an active part in the Advisory Committee on League of Nations Teaching and the Intellectual Cooperation Committee, being replaced in the Governing Body by Malcolm W. Davis. Mr. Avinoff, Director of the Pittsburgh Carnegie Museum, reported to the Intellectual Cooperation Committee on collaboration between scientific museums. The Conference on Collective Security organized under the auspices of the Paris Institute, was attended by Earl B. Babcock for the Carnegie Endowment, and Philip C. Jessup and Walter H. Mallory for the Council on Foreign Relations.

LAW

Another permanent contractual link between the United States and the League was forged in January, when the former contracted henceforward to register all its treaties with the League. During the year 17 American documents were registered under this new arrangement.

While no formal progress was made in regard to the World Court, hearings were held by the Senate Foreign Affairs Committee on March 23 and May 16 for supporters and opponents respectively. Frank B. Kellogg continued to serve as Judge of the Court which has to date rendered 22 judgments and 25 advisory opinions.

INTERNATIONAL LABOR ORGANIZATION

A complete reversal took place in American relations with the International Labor Organization in 1934, when the United States became one of its three-score Members. Since the inaugural Conference convened by President Wilson in Washington in 1919, less cooperation had taken place with that organization than with other international agencies. In 1933, however, when the economic crisis in the United States evolved a cooperative system closely akin to the tripartite system of representation of Governments, employers and workers at the base of the Labor Organization, a Delegation of Observers was sent for the first time to the annual Conference. In January, 1934, the Governing Body of the Labor Office reciprocated by the appointment of a series of American experts to various technical committees. By the late spring, the Administration had decided to go the whole way, and on June 6 Senator Robinson, Democratic Leader, introduced a joint resolution "providing for membership of the United States in the International Labor Organization." This Resolution was passed without a roll-call in the Senate and by a comfortable two-thirds majority in the House. It was duly signed on June 18 and communicated in the form of a letter from Prentiss Gilbert, American Consul in Geneva, to the Eighteenth Annual Labor Conference then in session. The Conference received the information with satisfaction, unanimously and immediately issued the necessary invitation, and extended a formal welcome to the American Delegation of observers then in Geneva. The invitation itself was officially accepted on Aug. 20, and plans were made during the rest of the year for wholehearted cooperation in this new agency for social justice.

A CENTURY OF PROGRESS INTERNATIONAL EXPOSITION —SECOND YEAR

By Rufus C. Dawes

President, A Century Of Progress International Exposition, Chicago

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CIRCUMSTANCES ATTENDING REPETITION OF FAIR

When A Century of Progress concluded its operations on Oct. 31 1934, Chicago established an entirely new precedent in the history of American expositions. It was the first time that any city in the United States had undertaken to repeat an international exposition.

The decision to reopen the World's Fair in 1934 was reached only after the management had received an almost universal public demand to hold it a second year and had satisfied itself that there were reasonable prospects for its success. When the date for closing the gates of the 1933 Exposition approached, it was evident that thousands of people were opposed to permitting it to pass into history. President Roosevelt who had made a brief visit to the Exposition wrote to express the opinion that a considerable demand existed for a reopening in 1934 and pointed out that many thousands who were unable to attend hoped to be in a better position to come in 1934.

Opinions in favor of reopening were echoed in editorial comment by newspapers and in letters from every part of the country. The Exposition's $20,000,000. plant which comprised 424 acres of ground along the shores of Lake Michigan was intact and the problem of maintaining it during the winter was not insurmountable. Exhibitors almost unanimously were eager for a second year of the Fair. Several great organizations which were not represented in 1933 expressed a desire to exhibit in 1934.

The announcement of the Exposition in 1934 received a response of such a nature as to assure us beyond any doubt that our action was approved by our exhibitors who had made possible the success of the summer of 1933.

THEME AND CHARACTER

It was determined in reopening the Exposition that its theme and fundamental philosophy would be the same as in the 1933 Exposition. In general the nature of the exhibits was, first, an explanation of the discovery of scientific knowledge in the past century, and second, an illustration of the application of this knowledge to industrial purposes.

The 1933 Exposition was held in commemoration of the completion of the first century of Chicago's life as an incorporated municipality. It was undertaken by the citizens of the city as a testimonial of their gratitude for the founders and builders of Chicago. It was organized to operate as a corporation, not for profit, under the laws of Illinois. In the promotion and execution of its plans no public funds were sought or used.

The sponsors of the Exposition recognized that Chicago's development was coincident with advancements throughout the world. They recognized also that this was due to the fact that in this century men had learned more about the secrets of nature and the manner in which natural forces could be used to promote his comforts than in all the preceding periods of history. Accordingly they shaped the Exposition to the character of the century it celebrated. The exposition thus became an international celebration of the contributions of science to industry for the betterment of mankind.

NEW ASPECTS AND FEATURES

But while preserving the essential spirit that characterized the Exposition in 1933, A Century of Progress in 1934 was a new World's Fair in many aspects. It was regarded by many as a more effective and spectacular exposition than its predecessor.

Early in 1934, contracts for new construction aggregating $5,000,000 by exhibitors and concessionaires assured fresh and novel features for the Fair. A new color scheme was developed by the artists based on the 1933 plan. Leading exhibitors of 1933 improved and expanded their displays as the results of experience gained in the previous year. The additions made by great industrial organizations represented for the first time in 1934 by new exhibits and free entertainment contributed essentially to the effectiveness of the Exposition.

Visitors to the Fair were rewarded with programs of music of an excellence never before achieved in a previous exposition. Two world famous symphony orchestras — Chicago and Detroit—presented free concerts daily during the greater part of the summer through the courtesy of leading exhibitors, Swift and Company and the Ford Motor Company, respectively. Shows and spectacles of high interest were presented by other exhibitors. Notable among these was the Standard Oil Company's wild animal show, viewed by hundreds of thousands of visitors.

There were new lighting effects, new buildings and attractions and an important rearrangement of the grounds to make room for the new features.

The chief elements in remapping the Expostion grounds were: 1. Moving the U. S. Army camp to Northerly Island to make room for the New Ford building and exhibit; 2. Utilization of the lagoons for new exhibit buildings and features including a vast fountain; 3. Moving the Midway from the center of the mainland to a location on the shores of Lake Michigan on Northerly Island, and 4. Erection on the site of the old Midway of a series of villages reproducing the life and atmosphere of old Europe.

The Ford building and exhibit was one of the major attractions of the 1934 World's Fair. Industrial displays were featured. Processes of manufacture were shown. The dependence of industry on agriculture was illustrated. The history of transportation from prehistoric times to the present was depicted. In the Ford Gardens a band shell was placed and there were thousands of seats provided for the public. Here free concerts by the Detroit Symphony Orchestra and other musical organizations were presented.

TRANSFORMATION OF THE LAGOONS

Giant Fountain.—One of the most spectacular features of the transformation of the lagoons was the great new fountain. This fountain extended south 670 feet into the lagoon from the Twelfth Street bridge and terminated in a vast watery dome. Outlets of the giant fountain permitted a flow of 68,000 gallons of water a minute, enough to service a city of 1,000,000 population. The fountain was illuminated and brilliantly colored at night by means of submarine floodlights.

The floating theater in the north lagoon of the previous year was built on piles, a large number of new seats were added to the amphitheater and restaurant facilities provided at each end of the board-walk. A diverting and varied program of free entertainment was offered at regular intervals during the year.

New Structures.—The lagoon area at the Sixteenth Street bridge was adorned by two unique new structures extending into the water on piling. One was the building housing the Hiram Walker exhibit and the Canadian Club Café. The other was the Armour building, shaped somewhat like a ship and presenting an extensive exhibit of this packing company's products and its development.

Bridge of Service.—The climax of the lagoon improvements was the Swift and Company's new Bridge of Service, formerly the Twenty-third Street bridge. Besides presenting an interesting exhibit area on this bridge, the company built a theater northward out into the lagoon and a stage and bandshell separated from the theater by a moat. Here the Chicago Symphony Orchestra presented a series of daily concerts free during the summer.

THE MIDWAY

By moving the Midway to Northerly Island, a concentrated area for amusements was provided on the Lake shore. Here were rides, shows and spectacles to gladden the hearts of the fun-seekers. Entertainment features that the experience of 1933 indicated as most desirable were retained, while less attractive ones were eliminated.

FOREIGN VILLAGES

The inspiration for the development of the series of foreign villages was undoubtedly the Medieval Belgian Village. It had been one of the most popular features of the 1933 Exposition and was seen again in 1934. The Streets of Paris and the Midget Village, a community peopled by tiny folks which were popular attractions the year before, were repeated in 1934.

The new villages were designed largely with the same faithful attention to historic and artistic values that characterized the Belgian Village. Visitors saw natives in their national costumes. They heard music from distant lands and ate foods prized in far countries. They trod cobble-paved streets fringed by reproductions of buildings famous in history and literature.

Altogether there were 15 different villages either in this area or elsewhere on the grounds. The new ones included: the Spanish Village, Tunisian Village, the Oasis, the Italian Village, American Colonial Village, English Village, Irish Village, German Black Forest Village, Swiss Village, Streets of Shanghai, Dutch Village and the Mexican Village.

RECREATIONAL AND HISTORICAL FEATURES

Recreational and historical features elsewhere on the Fair grounds which proved popular in 1933 were retained. Among these was the mammoth Sky Ride. It was illuminated at night with thousands of electric lights transforming the network of steel cables connecting the glowing tower tops into a mesh of gleaming strands. There was the Enchanted Island, or children's fairyland, old Fort Dearborn, the Chinese Lama Temple, the pageant of transportation, "Wings of A Century."

HALL OF SCIENCE

As in 1933 the Hall of Science was the center of the exhibits scheme. Again it was the most popular building among the visitors to the Fair. There were important additions made to the Basis of Science exhibits, to the exhibits of the progress of medical science and to the displays by companies and organizations whose products are closely allied to the sciences.

INDUSTRIAL EXHIBITS

The exhibits presented by companies representing many different phases of industry were shown in buildings radiating out from the Hall of Science. These included the Electrical Building, the five pavilions of the General Exhibits Group, the Travel and Transport Building, Home Planning Hall, Western Union Hall, the Foods and Agriculture Building, General Motors Building, Ford Building, Chrysler Building, Sears, Roebuck Building, Firestone Building, Armour Building, Swift Exhibit, Kohler Exhibit Building, Crane Exhibit, Johns-Manville Building, Wilson and Company Exhibit Building, Continental Baking Company Building, Brookhill Dairy Building.

Transportation in all its phases was depicted, from new stream-lined air-conditioned trains to three-mile-a-minute airplanes. The fabrication of rubber was shown. Electricity in its various phases as a servant of mankind was dramatized through exhibits. There were exhibits of the petroleum industry, of textiles, graphic arts, agriculture, meat packing, food production and distribution, chemicals, automobile manufacturing, the production of precious gems, and scores of other industrial processes of arresting interest. There were products and services as diverse as the poles, but with the common characteristic of relating to the comfort, safety and convenience of all the people.

SOCIAL SCIENCE

In the Hall of Social Science, augmented exhibits explained the nature of the social problems growing out of the changes in living conditions which the amazing development of industry has wrought. The progress of education, the development of social welfare, the care of dependents and public health and community service were all dealt with in lucid, understandable exhibits.

The housing exhibit which proved of such interest in 1933 was repeated in 1934 with important additions made to the dwellings in this group. Added features this year were a group of country homes located near the south entrance and several other homes in other sections of the grounds demonstrating air conditioning, new uses of building materials, interior decoration and home construction.

GOVERNMENT EXHIBITS

American. — The United States Government was represented in the 1934 Exposition by exhibits in its spacious and impressive building showing the service of various agencies and departments of the government to its citizens.

Eleven states and two territorial possessions of the United States presented exhibits in the States Building, featuring scenic attractions, the development of agriculture, manufacturing and industry. Among states represented were Florida, New Mexico, West Virginia, South Dakota, Missouri, Georgia, Ohio, Washington, Arizona, California and Illinois. The Virgin Islands and Puerto Rico represented the nation's territorial possessions.

Foreign.—Foreign governments including Italy and China had official buildings and exhibits on the grounds. Sweden and Czecho-Slovakia had pavilions and exhibits provided through the efforts of Chicago groups of these nationalities. Americans of Greek descent organized a display of Greek merchandise. The governments of Spain and Mexico were represented by displays in the Spanish and Mexican Villages, respectively. The Grand Duchy of Luxembourg and the Chamber of Commerce of Palestine presented exhibits.

FINE ARTS

As in 1933, the exhibit of the fine arts which is such an essential part of any world's fair was in the hands of the Art Institute of Chicago. This exhibition was divided into two principal sections. One was a display of American painting from the eighteenth century to the present day. The other was of the old masters of Europe in which outstanding pictures of the Art Institute's own magnificent collection were augmented by important loans from foreign museums.

ECONOMIC AND FINANCIAL ASPECTS

Attendance.—The test of the success of A Century of Progress or any other Exposition is its ability to attract the public. The paid attendance in 1934 was 16,486,297. With the attendance of 22,565,859 recorded in 1933, the total for the two years of operation was 39,052,156. No great exposition ever held in the United States outside of Chicago has had a paid attendance in excess of 13,185,000.

Financing. — The success of its operations during 1934, enabled the Exposition to pay off in full its $10,000,000 issue of Gold Notes. This was a gratifying outcome, especially in view of the fact that the financial scheme of A Century of Progress differed from that of all its predecessors in that it laid no burden on the taxpayers in the form of governmental subsidies, but obtained the funds for building and preparing for the Fair through a bond issue and the sale of exhibit space to industry. The Exposition's preliminary financing was obtained through the sale of Founder and Sustaining Memberships, the proceeds of which amounted to $271,400. The major financing was obtained through the sale of a $10,000,000 6% Guaranteed Gold Note issue.

Revenue. — The revenue received from the date of incorporation, Jan. 5, 1928, through Oct. 31, 1934, from all sources, amounted to $32,937,531. The major part of this revenue came from gate admissions, $16,636,260; from participation in concessions, $6,792,915, and from the sale of exhibit space to industries, $5,203,959.

Construction and Operation Cost. —The total cost of construction and operation from Jan. 5, 1928, to Oct. 31, 1934, was $31,919,123.94, which left a balance of $1,018,407 reserved for the post-Fair activity in connection with demolition.

Expenditures by the public on the Fair grounds exclusive of gate admissions, for food, entertainment, transportation and merchandise amounted to approximately $44,000,000 for the two years of the Exposition's operation. Based on the attendance of 39,052,156 for the two periods, the average expenditure per person, exclusive of gate admissions, was $1.12½.

Conclusion.—The successful operation of the Exposition in the two years of its existence clearly demonstrated that world's fairs are not obsolete; that the public is still interested and will support them. Unquestionably the most popular features for the millions of visitors were those which explained the fundamental philosophy of the Exposition.

CHRONOLOGY OF INTERNATIONAL EVENTS AFFECTING THE UNITED STATES

(From *The New York Times*, January 1, 1935)

JANUARY

Jan. 15—A military junta replaces President Grau San Martin in Cuba, with Carlos Hevia as President, who, however, fails to win civic favor; on Jan. 18, he is supplanted by Colonel Carlos Mendieta, who is recognized by the United States, Jan. 23, and sugar negotiations between the two countries are resumed in favor of Cuban planters.

APRIL

April 27—Twelve American nations, including the United States, sign anti-war agreements at Buenos Aires.

The Navy League of the United States declares that the American fleet will be obselete within three years.

MAY

May 5—The Attorney General of the United States decides that ''token'' payments on account of war debts do not mean ''default.''

May 25—The United States Department of State reminds the debtor nations of the respective sums due June 15—only Finland pays; later they are reminded of Dec. 15, when Finland again is the only one to pay.

May 29—A Cuban-United States treaty is signed at Washington abrogating the Platt Amendment under which the latter country has been able to intervene in Cuba since 1903.

JUNE

June 14—Germany declares a six-month moratorium on all foreign debt payments, which leads to trade complications with Great Britain; June 28—United States Secretary of State, in comment on the declaration, observes that Germany is herself to blame for her economic condition.

June 18—United States and Great Britain began preliminary talks concerning procedure at the scheduled naval limitation conference of 1935.

June 27—British note to the United States held that the amount to be paid on its war debt, not the method of payment, was the important question to be considered, and rejected Secretary Hull's suggestion of "part payment in kind."

June 28—Blame for Germany's financial plight, culminating in suspension of foreign debt service on July 1, placed on Nazi policies by Secretary Hull in note acknowledging announcement of forthcoming moratorium.

June 29—President Roosevelt declared an embargo on the shipment of arms, munitions and military equipment to Cuba except under license from the State Department.

JULY

July 1-Aug. 5—The President boards the cruiser Houston at Annapolis, bound for Portland, Ore., via Panama Canal and Hawaii; July 5, Haiti, where he addresses President Vincent in French; July 6-7, Puerto Rico; July 8, Virgin Islands; July 10, Colombia, where courtesies are exchanged with President Enrique Olaya Herrera; July 11, the first United States President to pass through the Panama Canal; July 25-28, the first one to visit Hawaii; Aug. 3, lands at Portland and speaks on irrigation at the site of the $31,000,000 Bonneville Dam; Aug. 4, similar address on site of the $63,000,000 Grande Coulee Dam; Aug. 5, in the Glacier National Park of Montana.

July 16—In strong communication United States demanded that the German government give American holders of German bonds the same treatment accorded to bondholders in other countries and refused to permit this treatment to be made contingent upon "trade concessions, clearing arrangements or similar measures."

July 27—Secretary Hull closed the door to arms shipments to Bolivia and Paraguay, as a means of discouraging war in the Chaco, after granting a final exception on $615,071 of supplies for Bolivia.

July 30—Secretary Hull on behalf of the Pan American Union, called on neutral American governments to indicate their attitude toward unified action to halt the Chaco war between Bolivia and Paraguay.

AUGUST

Aug. 1—Secretary Swanson advocated a general reduction of 20 per cent in naval armaments by all powers signatory to the London naval treaty, but insisted that the 5—5—3 ratio of naval strength fixed by the Washington naval treaty of 1922 should stand.

August 15—United States marines are withdrawn from Haiti, where they had been maintaining order for the last 19 years.

August 17—Brazil emulates the United States by destroying surplus stocks—upward of 30,000,000 bags of coffee—thus restoring the normal world monthly consumption of 2,000,000 bags.

Aug. 20—The United States becomes a member of the International Labor Organization.

Aug. 22—Secretary Swanson awarded contracts for a 1934-35 program of twenty-four warships at a total cost of $53,106,000 to be begun at once.

Aug. 24—A new era in trade relations between the United States and Cuba was inaugurated with the signing of a reciprocal trade pact favoring the island's sugar and rum and many American products.

SEPTEMBER

Sept. 4—Close working agreement between the Electric Boat Company and Vickers, Ltd., British manufacturer, to dominate world submarine building and payments by the American company of large "commissions" to Sir Basil Zaharoff, revealed at opening of Senate munitions inquiry.

Sept. 6—United States negotiations

for a debt settlement with Russia reached an impasse, owing to the unwillingness of the United States to extend to Russia a loan to facilitate trade.

Senate munitions inquiry disclosed documentary charges that Germans had honeycombed small European nations with camouflaged plants to maintain Germany's position as a submarine power, banned by the Versailles treaty.

Sept. 11—Foreign protests against disclosures failed to moderate the Senate munitions inquiry.

Sept. 17—The Senate inquiry disclosed material which, it was argued, showed that Germany, regardless of treaty restrictions, was proceeding to build up a military air force and steadily increasing the home production of planes, as well as purchases, "for commercial purposes," of engines and airplane equipment in the United States and other foreign countries.

Sept. 19—Secretary Swanson announced that the 1935 manoeuvres of the United States fleet would be held in the Alaska-Hawaii-Puget Sound triangle of the North Pacific Ocean.

Sept. 26—Acting under the Roosevelt-Litvinoff agreement reached at the time the United States recognized the Soviet Union, the government started two suits to gain possession of funds on deposit in New York banks to the credit of Russian insurance companies nationalized by the Soviet Government in 1918.

OCTOBER

Oct. 4—President Roosevelt named Norman H. Davis and Admiral Standley as the American delegation to the London preliminary soundout sessions on renewal of the Washington and London naval treaties.

Oct. 13—The German Embassy at Washington made formal announcement of a plan whereby American holders of Dawes Plan bonds would receive only about 75 per cent of the interest due them on Oct. 15. Germany wants a drastic change in the treaty of commerce and friendship she signed with the United States in 1925.

Dr. Hans Luther, the German Ambassador, served notice on the State Department that the Berlin government intended to terminate the trade treaty between Germany and the United States.

NOVEMBER

Nov. 7—Newton D. Baker proposed the entry of the United States into the League of Nations on a basis whereby its representative might vote on matters which he felt affected world peace.

Nov. 20—The United States offered a plan at Geneva for international control of the arms traffic.

Nov. 23—The British and American delegations at London determined to insist that the 5—5—3 ratio be maintained.

Nov. 24—Secretary Hull, in a note to the German government, protested the Reich's treatment of creditors here and asked for an early end of discrimination against American bondholders; unfairness on the Dawes, Young and Krueger loans and non-Reich debts was alleged.

DECEMBER

Dec. 7—The United States accepted the League of Nations invitation to be represented on a supervisory commission at Buenos Aires to assure that neutrality would be preserved after an armistice should have been agreed to in the Chaco warfare.

Dec. 11—The Senate inquiry revealed that since 1923 the War and Navy Departments had approved efforts of E. I. du Pont de Nemours Company to sell explosive-making machinery to Japan, the departments taking the position that such sales would reveal to their intelligence services information from which facts might be deduced concerning Japan's plans.

Dec. 15—Finland paid in full the amount of $228,538 due on her war debt to the United States; the only government doing so.

Dec. 19—The Japanese Privy Council unanimously advised Emperor Hirohito to abrogate the Washington naval treaty; the naval parley at London ended in a victory for the diplomacy of the United States under the leadership of Mr. Davis, the British supporting the American position and declaring that Tokyo's parity plan would not mean equality in security.

Dec. 21—Austria was removed from the ranks of debt-defaulting nations, under an interpretation by the Treasury, an action which made obligations of that government eligible for sale in the United States, unless Attorney General Cummings should rule otherwise.

Dec. 29—Japan formally notified the United States that after Dec. 31, 1936, Japan would not be bound by the Washington naval treaty.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

Academy of Political Science in the City of New York, Fayer-Weather Hall, Columbia University, New York City.

American Arbitration Association, 521 Fifth Avenue, New York City.

American Peace Society, 734 Jackson Place, Washington, D. C.

American Society of International Law, 700 Jackson Place, N. W., Washington, D. C.

Carnegie Endowment for International Peace, 700 Jackson Place N. W., Washington, D. C.

Council on Foreign Relations, Inc., 45 East 65th Street, New York City.

Foreign Policy Assn., 18 East 41st Street, New York City.

Institute of Current World Affairs, 522 Fifth Ave., New York City.

International Reform Federation, 134 B St. N. E., Washington, D. C.

League of Nations Assn., 6 East 39th Street, New York City.

League of Nations Union, 70 Fifth Ave., New York City.

National Council for Prevention of War, 532 17th Street N. W., Washington, D. C.

People's Lobby, Inc., 113 First St. N. E., Washington, D. C.

Women's International League for Peace and Freedom, 150 Fifth Avenue, New York City.

Women's Peace Society, 20 Vesey Street, New York City.

Women's Peace Union, 39 Pearl Street, New York City.

World Peace Foundation, 40 Mount Vernon Street, Boston, Mass.

REGIONAL

American Asiatic Assn., 1 Hanover Square, New York City.

American Committee for Armenian Independence, 1 Madison Ave., New York City.

Armenia-America Society, 289 Fourth Ave., New York City.

China Society of America, 570 Lexington Avenue, New York City.

Committee on Cooperation in Latin America, 254 Fourth Ave., New York City.

English-Speaking Union of the United States, 19 West 44th St., New York City.

Far East Conference, 21 West Street, New York City.

French Institute in the United States, 22 East 60th Street, New York City.

Friends of Freedom for India, 799 Broadway, New York City.

Friends of Irish Freedom, 280 Broadway, New York City.

Japan Society, Inc., 36 West 44th Street, New York City.

National Assn. for Protection of American Rights in Mexico, 17 Battery Place, New York City.

Netherland Assn. of North America, 179 S. Trenchard Street, Yonkers, N. Y.

Pan-American Society, Inc., 67 Broad Street, New York City.

Pan-Pacific Union, Honolulu, Hawaii.

PART TWO
AMERICAN GOVERNMENT

DIVISION III
THE NATIONAL GOVERNMENT

PERSONNEL OF CONGRESS

By Milton Conover

Professor, Yale University

PARTY ALIGNMENTS

Senate. — The personnel of the United States' Senate on Sept. 26, 1934, consisted of 60 Democrats, 35 Republicans, and one Farmer-Labor. The personnel for the 74th Congress, compiled as of Dec. 26, 1934, indicated that the Senate convening on Jan. 3, 1935, would contain 69 Democrats, 25 Republicans and one Farmer-Labor (Hendrik Shipstead), and one Progressive (Robert M. LaFollette, Jr.). The Senate of the 74th Congress accordingly contains more Democrats than ever before and the fewest Republicans since the 35th Congress, which recorded 20 members of the then new Republican Party out of a total of 64 Senators.

House. — The personnel of the House of Representatives on Sept. 26, 1934, consisted of 309 Democrats, 114 Republicans, five Farmer-Labor and seven vacancies. Three months later, the House of Representatives for the 74th Congress promised to consist of 322 Democrats, 102 Republicans, three Farmer-Labor, seven Progressives and one vacancy, due to the death of Representative-elect Frederick Landis, of Indiana. This Congress, therefore, numbers more Democrats than ever before and the fewest Republicans since the 52nd Congress, which contained 88 Republicans out of a total of 333 Representatives.

Of these 322 Democratic Representatives of the 74th Congress, 246 were reelected and 76 were new members. Of the 103 Republicans, 75 were reelected and 28 were new members. Of the members of the 73rd Congress who did not seek re-election or were defeated in their contests, 63 were Democrats, 36 were Republicans and three were Farmer-Labor. The total number of new members elected to the 74th Congress is 110, distributed over 31 states. The 17 states having no new representatives are: Arizona, Colorado, Florida, Idaho, Louisiana, Maryland, Montana, Nevada, New Hampshire, Rhode Island, South Carolina, South Dakota, Utah, Vermont, Virginia, Washington and West Virginia.

SENATE PERSONALITIES

Carl A. Hatch.—These political alignments result from several factors, some of which occurred after 1933 (see The American Year Book, 1933, p. 106). During the year 1934, three new United States Senators took seats vacated in 1933 by resignation or death, each having been appointed by their respective State Governors. Senator Carl A. Hatch, Democrat, of New Mexico was sworn in on Jan. 3, 1934, to fill the vacancy caused by the resignation of Senator Sam G. Bratton on June 24, 1934. Senator Hatch was born in Kansas in 1889, graduated in Law at Cumberland University, served as Assistant Attorney General of New Mexico and State District Judge, and was appointed to the Senate by Governor A. W. Hockenhull on Oct. 10, 1933.

Ernest W. Gibson, Republican, of Vermont, took his seat on Feb. 1, 1934, replacing Senator Porter H. Dale, who died Oct. 6, 1933. Senator Gibson had served in the House of Representatives during the six Congresses immediately preceding his appointment to the Senate by Governor Stanley C. Willson on Nov. 21, 1933. He was educated at the old Black River Academy, where the late President Coolidge studied, and at Norwich University, the military college of the State of Vermont. He served overseas during the World War, and served his state in the Legislature, the Judiciary and the Administrative branches, being a lawyer by profession.

Senator C. O'Mahoney, Democrat, of Wyoming, also took the oath of Senator on Jan. 3, 1934, occupying the seat vacated by Senator John B. Kendrick, who died Nov. 3, 1933. He was appointed by Governor Leslie A. Miller on Dec. 18, 1933. He is a native of Massachusetts, and was educated at Columbia University and Georgetown University Law School, and has served as Democratic National Committeeman and as First Assistant Postmaster General.

HOUSE OF REPRESENTATIVES

Vacancies.—In the House of Representatives the year 1934 witnessed new members to fill the 19 vacancies of the year due to six resignations and 13 deaths during the years 1933-1934.

Isabella Greenway.—Three of the new Representatives were replacements for resignations and eight for deaths. Of the former was Isabella Greenway, Democrat, of Arizona, who, on Jan. 3, 1934, was sworn in to serve in place of Lewis N. Douglas, who resigned March 4, 1933. By residence in various sections of the country she has acquired a national perspective. She was born in Kentucky, reared in Minnesota, educated in New York, homesteaded in New Mexico, resided in California, and settled in Arizona in 1923, becoming Democratic National Committee Woman in 1928.

David D. Terry, Democrat, of Arkansas, likewise became a Congressman on Jan. 3, 1934, replacing Heartsill Ragon who resigned on June 16, 1933. He is a native of Arkansas, and a graduate of the Law School of the University of Arkansas, and he served in the Infantry during the World War.

Charles A. Plumley, Republican, of Vermont, on Jan. 18, 1934, was sworn in for the seat previously occupied by Senator Ernest W. Gibson. For nearly 20 years, Congressman Plumley had been President of Norwich University, the Vermont State Military College.

Clark N. Thompson.—Of the eight Representatives who were chosen to serve in place of deceased Congressmen, was Clark N. Thompson, Democrat, of Texas, *vice* Clay Stone Briggs, who died on April 29, 1933. Mr. Thompson, however, was replaced in 1934 by Nat Patton.

Paul Brown, Democrat of Georgia, took his place on Jan. 3, 1934 also, in the seat vacated on May 17, 1933, through the death of Charles H. Brand. He is a lawyer and farmer and has served as Mayor and State Legislator.

Jared Y. Sanders, Jr., Democrat, of Louisiana, took his oath on May 21, 1934, in the place of Bolivar E. Kemp, deceased June 19, 1933. Mr. Sanders' entry to the Congress was not without a touch of Louisiana drama, because Mr. Sanders "upon the refusal of the Governor to call a legal election to fill a vacancy, was elected to the House of Representatives at an election called by the citizens of the Sixth Congressional District on December 27, 1933," this District including the noted Parish of East Baton Rouge. But the "House of Representatives refused to seat either of the two contesting candidates," and Mr. Sanders was elected at a special election on May 1, 1934, to fill a vacancy. (*Congressional Record*, May, 1934, p. 42). Mr. Sanders studied at three Southern Universities and he served in the infantry in France during the World War.

Archibald Hill Carmichael, Democrat, of Alabama, on Jan. 3, 1934, replaced Representative Edward B. Almon, deceased June 22, 1933. He won the Phi Beta Kappa at the University of Alabama, and had served in both Houses of the Alabama Legislature, including a period as Speaker of the House.

Oliver W. Frey, Democrat of Pennsylvania, on Jan. 3, 1934, succeeded the late Representative Henry W. Watson, who died on Aug. 27, 1933. He was graduated at William and Mary College and at the University of Pennsylvania Law School, and served in the U. S. Army during the World War.

Andrew Edmiston, Democrat, of West Virginia, on Jan. 3, 1934, filled the vacancy caused by the passing of Lynn S. Horner on Sept. 23, 1933. He is a graduate of Kentucky Military Institute and of the University of West Virginia. He served in France during the World War and won the Distinguished Service Cross.

William D. Thomas, Republican, also of New York, took his seat Feb. 5, 1934, in succession to James S. Parker, deceased Dec. 19, 1933. He is a graduate pharmacist and Director of a People's Bank.

Harold D. Cooley.—The more recent member of the 73d Congress was Representative Harold D. Cooley, of North Carolina, who was chosen on July 7, 1934, to succeed Edward W. Pon, who died April 1, 1934.

MEMBERS OF THE SENATE

Compiled from the Congressional Directory, Year, 1935

(Dates show beginning of service in the Senate. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer-Labor in ROMAN CAPS.)

ALABAMA

John H. Bankhead (1931).
Hugo L. Black (1927).

ARIZONA

Henry F. Ashurst (1912).
Carl Hayden (1927).

ARKANSAS

H. W. Caraway (1931).
Joseph T. Robinson (1913).

CALIFORNIA

Hiram W. Johnson (1917).
William G. McAdoo (1933).

COLORADO

Alva B. Adams (1933).
Edward P. Costigan (1931).

CONNECTICUT

Augustine Lonergan (1933).
Francis T. Maloney (1935).

DELAWARE

Daniel O. Hastings (1929).
John G. Townsend, Jr. (1929).

FLORIDA

Duncan U. Fletcher (1909).
Park Trammell (1917).

GEORGIA

Walter F. George (1922).
Richard B. Russell, Jr. (1933).

IDAHO

William E. Borah (1907).
James P. Pope (1933).

ILLINOIS

William H. Dieterich (1933).
James H. Lewis (1931).

INDIANA

Shermon Minton (1935).
Frederick Van Nuys (1933).

IOWA

L. J. Dickinson (1931).
Louis Murphy (1933).

KANSAS

Arthur Kapper (1919).
George McGill (1931)

KENTUCKY

Alben W. Barkley (1927).
Marvel M. Logan (1931).

LOUISIANA

Huey P. Long (1931).
John H. Overton (1933).

MAINE

Frederick Hale (1917).
Wallace H. White, Jr. (1931).

MARYLAND

George L. Radcliffe (1935).
Millard E. Tydings (1927).

MASSACHUSETTS

Marcus A. Coolidge (1931).
David I. Walsh (1926).

MICHIGAN

James Couzens (1922).
Arthur H. Vandenberg (1928).

MINNESOTA

Thomas D. Schall (1925).
HENRIK SHIPSTEAD (1923).

MISSISSIPPI

Theodore G. Bilbo (1935).
Pat Harrison (1919).

MISSOURI

Bennett C. Clark (1933).
Harry S. Truman (1935).

MONTANA

James E. Murray (1935).
Burton K. Wheeler (1923).

NEBRASKA

Edward R. Burke (1935).
George W. Norris (1913).

NEVADA

Patrick A. McCarren (1933).
Key Pittman (1913).

NEW HAMPSHIRE

Fred H. Brown (1933).
Henry W. Keyes (1919).

NEW JERSEY

W. Warren Barbour (1932).
Arthur H. Moore (1935).

NEW MEXICO

Bronson Cutting (1927).
Carl A. Hatch (1934).

NEW YORK

Royal S. Copeland (1923).
Robert F. Wagner (1927).

NORTH CAROLINA

Josiah W. Bailey (1931).
Robert R. Reynolds (1932).

NORTH DAKOTA

Lynn J. Frazier (1923).
Gerald P. Nye (1925).

OHIO

Robert J. Bulkley (1931).
Vic Donahey (1935).

OKLAHOMA

Thomas P. Gore (1931).
Elmer Thomas (1927).

OREGON

Charles L. McNary (1918).
Frederick Steiwer (1927).

PENNSYLVANIA

James J. Davis (1931).
Joseph F. Guffey (1935).

RHODE ISLAND

Peter G. Gerry (1935).
Jesse H. Metcalf (1924).

SOUTH CAROLINA

James F. Byrnes (1931).
Ellison D. Smith (1909).

SOUTH DAKOTA

William J. Bulow (1931).
Peter Norbeck (1921).

TENNESSEE

Nathan L. Bachman (1933).
Kenneth McKellar (1917).

TEXAS

Tom Connally (1929).
Morris Sheppard (1913).

UTAH

William H. King (1917).
Elbert D. Thomas (1933).

VERMONT

Warren R. Austin (1931).
Ernest W. Gibson (1933).

VIRGINIA

Harry F. Byrd (1933).
Carter Glass (1920).

WASHINGTON

Homer T. Bone (1933).
Lewis B. Schwellenbach (1935).

WEST VIRGINIA

Rush D. Holt (1935).
Matthew N. Neely (1931).

WISCONSIN

F. Ryan Duffy (1933).
Robert M. LaFollette, Jr. (1925).

WYOMING

Robert D. Carey (1931).
Joseph C. O'Mahoney (1933).

MEMBERS OF THE HOUSE OF REPRESENTATIVES

Compiled from the Congressional Directory, Year, 1935

(Dates show beginning of service in the House. Names of Republicans are in Roman type; those of Democrats in *Italic;* Farmer-Labor in ROMAN CAPS.)

ALABAMA

1. *John McDuffie* (1919).
2. *Lister Hill* (1923).
3. *Henry B. Steagall* (1914).
4. *Sam Hobbs* (1935).
5. *Joe Starnes* (1935).
6. *William B. Oliver* (1915).
7. *William B. Bankhead* (1917).
8. *A. H. Carmichael* (1933).
9. *George Huddleston* (1915).

ARIZONA

At Large—*Isabella Greenway* (1933).

ARKANSAS

1. *William J. Driver* (1921).
2. *John E. Miller* (1931).
3. *Claude A. Fuller* (1929).
4. *Ben Cravens* (1933).
5. *David D. Terry* (1934).
6. *John L. McClellan* (1935).
7. *Tilman B. Parks* (1921).

CALIFORNIA

1. *Clarence F. Lea* (1917).
2. Harry L. Englebright (1926).
3. *Frank H. Buck* (1933).
4. Florence P. Kahn (1925).
5. Richard J. Welch (1925).
6. Albert E. Carter (1925).
7. *John H. Tolan* (1935).
8. *John J. McGrath* (1933).
9. *Bertrand W. Gearhart* (1935).
10. *Henry E. Stubbs* (1933).
11. *John S. McGroarty* (1935)
12. *John H. Hoeppel* (1933).
13. *Charles Kramer* (1933).
14. *Thomas F. Ford* (1933).
15. *John M. Costello* (1935).
16. *John F. Dockweiler* (1933).
17. *Charles J. Colden* (1933).
18. *Byron N. Scott* (1935).
19. Samuel L. Collins (1933).
20. George Burnham (1933).

COLORADO

1. *Lawrence Lewis* (1933).
2. *Fred Cummings* (1933).
3. *John A. Martin* (1933).
4. *Edward T. Taylor* (1909).

CONNECTICUT

At Large—*William M. Citron* (1935).

1. *Herman P. Kopplemann* (1933).
2. William L. Higgins (1933)
3. *James A. Shanley* (1935).
4. Schuyler Merritt (1933).
5. *J. Joseph Smith* (1935).

DELAWARE

At Large—John G. Stewart (1935).

FLORIDA

At Large—*William J. Sears* (1933).

1. *James H. Peterson* (1933).
2. *Robert A. Green* (1925).
3. *Millard F. Caldwell* (1933).
4. *James M. Wilcox* (1933).

GEORGIA

1. *Hugh Peterson, Jr.* (1935).
2. *E. E. Cox* (1925).
3. *Bryant T. Castellow* (1932).
4. *Emmet M. Owen* (1933).
5. *Robert Ramspeck* (1929).
6. *Carl Vinson* (1914).
7. *Malcolm C. Tarver* (1927).
8. *Braswell D. Dean* (1933).
9. *B. Frank Whelchel* (1935).
10. *Paul Brown* (1933).

IDAHO

1. *Compton I. White* (1933).
2. *D. Worth Clark* (1935).

ILLINOIS

At Large—*Martin A. Brennan* (1933).
Michael L. Igoe (1935).

1. *Arthur W. Mitchell* (1935).
2. *Raymond S. McKeough* (1935).
3. *Edward A. Kelly* (1931).
4. *Harry P. Beam* (1931).
5. *Adolph J. Sabath* (1907).
6. *Thomas J. O'Brien* (1933).
7. *Leonard W. Schuetz* (1931).
8. *Leo Kocialkowski* (1933).
9. *James McAndrews* (1935).
10. Ralph E. Church (1935).
11. Chauncey W. Reed (1935).
12. John T. Buckbee (1926).
13. Leo E. Allen (1933).
14. *Chester Thompson* (1933).
15. *J. LeRoy Adair* (1933).
16. Everett M. Dirksen (1933).
17. Leslie C. Arends (1935).
18. *James A. Meeks* (1933).
19. *Donald C. Dobbins* (1933).
20. *Scott W. Lucas* (1935).
21. *Harry H. Mason* (1934).
22. *Edwin M. Schaeffer* (1933).
23. *William W. Arnold* (1923).
24. *Claude V. Parsons* (1930).
25. *Kent E. Keller* (1931).

INDIANA

1. *William T. Schulte* (1933).
2. Vacant
3. *Samuel B. Pettengill* (1931).
4. *James I. Farley* (1933).
5. *Glenn Griswold* (1931).
6. *Virginia E. Jenckes* (1933).
7. *Arthur H. Greenwood* (1933).
8. *John W. Boehne, Jr.* (1933).
9. *Eugene B. Crowe* (1931).
10. *Finly H. Gray* (1933).
11. *William H. Larrabee* (1931).
12. *Louis Ludlow* (1929).

IOWA

1. *Edward C. Eicher* (1933).
2. *Bernhard M. Jacobsen* (1931).
3. John W. Gwynne (1935).
4. *Fred Biermann* (1933).
5. Lloyd Thurston (1933).
6. *Hubert Utterback* (1935).
7. *Otha D. Wearin* (1933).
8. Fred C. Gilchrist (1931).
9. *Guy M. Gillette* (1933).

KANSAS

1. W. P. Lambertson (1929).
2. U. S. Guyer (1926).
3. *Edward W. Patterson* (1935).
4. *Randolph Carpenter* (1933).
5. *John M. Houston* (1935).
6. Frank Carlson (1935).
7. Clifford R. Hope (1926).

KENTUCKY

1. *William V. Gregory* (1927).
2. *Glover H. Carey* (1931).
3. *Emmet O'Neal* (1935).
4. *Cap R. Carden* (1931).
5. *Brent Spence* (1931).
6. *Virgil Chapman* (1931).
7. *Andrew J. May* (1931).
8. *Fred M. Vinson* (1931).
9. John M. Robsion (1935).

LOUISIANA

1. *Joachim O. Fernandez* (1931).
2. *Paul H. Maloney* (1931).
3. *Numa F. Montet* (1929).
4. *John N. Sandlin* (1921).
5. *R. J. Wilson* (1915).
6. *Jared Y. Sanders, Jr.* (1934).
7. *R. L. DeRouen* (1927).
8. *Cleveland Dear* (1933).

MAINE

1. *Simon M. Hamlin* (1935).
2. *Edward C. Moran, Jr.* (1933).
3. Ralph O. Brewster (1935)

MARYLAND

1. *T. A. Goldsborough* (1921).
2. *Wm. P. Cole, Jr.* (1931).
3. *V. L. Palmisano* (1927).
4. *Ambrose J. Kennedy* (1932).
5. *S. W. Gambrill* (1924).
6. *David J. Lewis* (1931).

MASSACHUSETTS

1. A. T. Treadway (1913).
2. *W. J. Granfield* (1930).
3. *Joseph E. Casey* (1935).
4. Pehr G. Holmes (1931).
5. Edith N. Rogers (1925).
6. A. Piatt Andrew (1921).
7. *W. P. Connery, Jr.* (1923).
8. *Arthur D. Healey* (1933).
9. *Richard N. Russell* (1935).
10. G. H. Tinkham (1915).
11. *John P. Higgins* (1935).
12. *J. W. McCormack* (1928).
13. R. B. Wigglesworth (1928).
14. J. W. Martin, Jr. (1925).
15. Charles L. Gifford (1922).

MICHIGAN

1. *George G. Sadowski* (1933).
2. Earl C. Michener (1935).
3. Henry M. Kimball (1935).
4. Clare E. Hoffman (1935).
5. Carl E. Mapes (1913).
6. William W. Blackney (1935).
7. Jesse P. Wolcott (1931).
8. Fred L. Crawford (1935).
9. Albert J. Engel (1935).
10. Roy O. Woodruff (1921).
11. *Prentiss M. Brown* (1933).
12. *Frank E. Hook* (1935).
13. C. J. McLeod (1923).
14. *Louis C. Rabaut* (1935).
15. *John D. Dingell* (1933).
16. *John Lesinski* (1933).
17. George A. Dondero (1933).

MINNESOTA

1. August H. Andresen (1935).
2. *Elmer J. Ryan* (1935).
3. ERNEST LUNDEEN (1933).
4. Melvin J. Maas (1935).
5. Theodore Christiansen (1933).
6. Harold Knutson (1917).
7. PAUL J. KVALE (1923).
8. William A. Pittenger (1935).
9. RICHARD T. BUCKLER (1935).

MISSISSIPPI

1. *John E. Rankin* (1921).
2. *Wall Doxey* (1929).
3. *W. M. Whittington* (1925).
4. *A. L. Ford* (1935).
5. *Aubert C. Dunn* (1935).
6. *William M. Colmer* (1933).
7. *Dan R. McGehee* (1935).

MISSOURI

1. *M. A. Romjue* (1923).
2. *William L. Nelson* (1935).
3. *Richard M. Duncan* (1933).
4. *Charles J. Bell* (1935).
5. *Joseph B. Shannon* (1931).
6. *Reuben T. Wood* (1933).
7. Dewey Short (1935).
8. *Clyde Williams* (1931).
9. *Clarence Cannon* (1923).
10. *Orville Zimmerman* (1935).
11. *Thomas C. Heenings, Jr.* (1935).
12. *James R. Claiborne* (1933).
13. *John J. Cochran* (1927).

MONTANA

1. *Joseph P. Monaghan* (1933).
2. *Roy E. Ayers* (1933).

NEBRASKA

1. *Henry C. Luckey* (1935).
2. *Charles F. McLaughlin* (1935).
3. Karl Stefan (1935).
4. *Charles G. Binderup* (1935).
5. *Harry B. Coffee* (1935).

NEVADA

At large—*James G. Scrugham* (1933).

NEW HAMPSHIRE

1. *William N. Rogers* (1932).
2. Charles W. Tobey (1933).

NEW JERSEY

1. C. A. Wolverton (1926).
2. Isaac Bacharach (1915)
3. *William H. Sutphin* (1931).
4. D. Lane Powers (1933).
5. Charles A. Eaton (1925).
6. Donald H. McLean (1933).
7. Randolph Perkins (1921).
8. George N. Seger (1923).
9. *Edward A. Kenney* (1933).
10. F. A. Hartley, Jr. (1929).
11. Peter A. Cavicchia (1931).
12. Frederick R. Lehlbach (1915).
13. *Mary T. Norton* (1925).
14. *Edward J. Hart* (1935).

NEW MEXICO

At large—*John J. Dempsey* (1935).

NEW YORK

At large—*Matthew J. Merritt* (1935).
Caroline O'Day (1935).

1. Robert L. Bacon (1923).
2. *W. F. Brunner* (1929).
3. *Joseph L. Pfeifer* (1935).
4. *Thomas H. Cullen* (1919).
5. *Marcellus H. Evans* (1935).
6. *Andrew L. Somers* (1925).
7. *John J. Delaney* (1931).
8. *Richard J. Tonry* (1935).
9. *Stephen A. Rudd* (1931).
10. *Emanuel Celler* (1923).
11. *James A. O'Leary* (1935).
12. *Samuel Dickstein* (1923).
13. *C. D. Sullivan* (1917).
14. *W. I. Sirovich* (1927).
15. *John J. Boylan* (1923).
16. *J. J. O'Connor* (1923).
17. *Theodore A. Peyser* (1933).
18. *M. J. Kennedy* (1930).
19. *Sol Bloom* (1923).
20. Vito Marcantonio (1935).
21. *J. A. Gavagan* (1929).
22. *Anthony J. Griffin* (1917).
23. *Charles A. Buckley* (1935).
24. *J. M. Fitzpatrick* (1926).
25. Charles D. Millard (1931).
26. Hamilton Fish, Jr. (1920).
27. Philip A. Goodwin (1933).
28. *Parker Corning* (1923).
29. William D. Thomas (1935).
30. Frank Crowther (1919).
31. Bertrand H. Snell (1915).
32. Francis D. Culkin (1928).
33. *Fred J. Sisson* (1933).
34. Bert Lord (1935).
35. C. E. Hancock (1927).
36. John Taber (1923).
37. W. Sterling Cole (1935).
38. *James P. B. Duffy* (1935).
39. James W. Wadsworth (1933).
40. Walter G. Andrews (1931).
41. *Alfred F. Beiter* (1933).
42. *James M. Mead* (1919).
43. Daniel A. Reed (1919).

NORTH CAROLINA

1. *Lindsay C. Warren* (1925).
2. *John H. Kerr* (1923).
3. *Graham A. Barden* (1935).
4. *Harold D. Cooley* (1935).
5. *F. W. Hancock, Jr.* (1930).
6. *William B. Umstead* (1933).
7. *J. Bayard Clark* (1929).
8. *John W. Lambeth* (1931).
9. *R. L. Doughton* (1911).
10. *A. L. Bulwinkle* (1931).
11. *Zebulon Weaver* (1931).

NORTH DAKOTA

At large—Usher L. Burdick (1935).
Willam Lemke (1933).

OHIO

At large—*Charles V. Truax* (1933).
Stephen M. Young (1933).

1. John B. Hollister (1931).
2. William E. Hess (1929).
3. *Byran B. Harlan* (1931).
4. *Frank L. Kloeb* (1933).
5. *Frank C. Kniffin* (1931).
6. *James G. Polk* (1931).
7. Leroy T. Marshall (1933).
8. *Brooks Fletcher* (1933).
9. *Warren Duffey* (1933).
10. T. A. Jenkins (1925).
11. *M. G. Underwood* (1923).
12. *Arthur P. Lamneck* (1931).
13. *William L. Feisinger* (1931).
14. *Dow W. Harter* (1933).
15. *Robert C. Secrest* (1933).
16. *William R. Thom* (1933).
17. *William A. Ashbrook* (1935).
18. *Lawrence E. Imhoff* (1933).
19. John G. Cooper (1915).
20. *Martin L. Sweeney* (1931).
21. *Robert Crosser* (1923).
22. Chester C. Bolton (1929).

OKLAHOMA

At large—*Will Rogers* (1933).

1. *Wesley E. Disney* (1931).
2. *Jack Nichols* (1935).
3. *Wilburn Cartwright* (1927).
4. *P. L. Gassaway* (1935).
5. *Josh Lee* (1935).
6. *Jed Johnson* (1926).
7. *Sam C. Massingale* (1935).
8. *Phil Ferguson* (1935).

OREGON

1. James W. Mott (1933).
2. *Walter M. Pierce* (1933).
3. William A. Eckwall (1935).

PENNSYLVANIA

1. Harry C. Ransley (1920).
2. William H. Wilson (1935).
3. Clare G. Fenerty (1935).
4. *John B. Daly* (1935).
5. *Frank J. G. Dorsey* (1935).
6. *Michael J. Stack* (1935).
7. George P. Darrow (1915).
8. James Wolfenden (1928).
9. *Oliver W. Frey* (1933).
10. J. R. Kinzer (1930).
11. *Patrick J. Boland* (1931).
12. C. M. Turpin (1929).
13. *James H. Gildea* (1935).
14. *William E. Richardson* (1933).
15. *C. Elmer Dietrich* (1935).
16. Robert F. Rich (1930).
17. J. William Ditter (1933).
18. Benjamin K. Focht (1933).
19. Isaac H. Doutrich (1926).
20. *D. J. Driscoll* (1935).
21. *Francis E. Walter* (1933).
22. *Harry L. Haines* (1931).
23. *Don Gingery* (1935).
24. *J. Buell Snyder* (1933).
25. *Charles I. Faddis* (1933).
26. *Charles R. Eckert* (1935).
27. *Joseph Gray* (1935).
28. *William M. Berlin* (1933).
29. *Charles N. Crosby* (1933).
30. *J. Twing Brooks* (1933).
31. *James L. Quinn* (1935).
32. *Theodore L. Moritz* (1935).
33. *Henry Ellenbogen* (1933).
34. *Matthew A. Dunn* (1933).

RHODE ISLAND

1. *Francis B. Condon* (1930).
2. *John M. O'Connell* (1933).

SOUTH CAROLINA

1. *T. S. McMillan* (1925).
2. *H. P. Fulmer* (1921).
3. *John C. Taylor* (1933).
4. *John J. McSwain* (1921).
5. *James P. Richards* (1933).
6. *Allard H. Gasque* (1928).

SOUTH DAKOTA

1. *Fred H. Hildebrandt* (1933).
2. *Theodore B. Werner* (1933).

TENNESSEE

1. B. Carroll Reece (1933).
2. J. Will Taylor (1919).
3. *S. D. McReynolds* (1923).
4. *John R. Mitchell* (1931).
5. *Joseph W. Byrns* (1909).
6. *Clarence W. Turner* (1933).
7. *Herron Pearson* (1935).
8. *Jere Cooper* (1929).
9. *Walter Chandler* (1935).

TEXAS

1. *Wright Patman* (1929).
2. *Martin Dies* (1931).
3. *Morgan G. Sanders* (1921).
4. *Sam Rayburn* (1913).
5. *H. W. Sumners* (1913).
6. *Luther A. Johnson* (1923).
7. *Nat Patton* (1935).
8. *Joe H. Eagle* (1933).
9. *J. J. Mansfield* (1917).
10. *J. P. Buchanan* (1913).
11. *O. H. Cross* (1929).
12. *Fritz G. Lanham* (1919).
13. *William D. McFarlane* (1933).
14. *Richard M. Kleberg* (1931).
15. *Milton H. West* (1933).
16. *Robert E. Thomason* (1931).
17. *T. L. Blanton* (1916).
18. *Marvin Jones* (1917).
19. *George H. Mahon* (1935).
20. *Maury Maverick* (1935).
21. *Charles L. South* (1935).

UTAH

1. *Abe Murdock* (1933).
2. *J. W. Robinson* (1933).

VERMONT

At large—Charles A. Plumley (1935).

VIRGINIA

1. *Schuyler O. Bland* (1918).
2. *Colgate W. Darden, Jr.* (1933).
3. *A. J. Montague* (1913).
4. *Patrick H. Drewry* (1920).
5. *Thomas G. Burch* (1931).
6. *C. A. Woodrum* (1923).
7. *A. Willis Robertson* (1933).
8. *Howard W. Smith* (1931).
9. *John W. Flannigan, Jr.* (1931).

WASHINGTON

1. *Marion A. Zioncheck* (1933).
2. *Monrad C. Wallgren* (1933).

3. *Martin F. Smith* (1933).
4. *Knute Hill* (1933).
5. *Samuel B. Hill* (1923).
6. *Wesley Lloyd* (1933).

WEST VIRGINIA

1. *Robert L. Ramsay* (1933).
2. *Jennings Randolph* (1933).
3. *Andrew Edmiston* (1933).
4. *George W. Johnson* (1933).
5. *John Kee* (1933).
6. *Joe L. Smith* (1929).

WISCONSIN

1. Thomas R. Amlie (1935).
2. Harry Sauthoff (1935).
3. Gardner R. Withrow (1931).
4. *Raymond J. Cannon* (1933).
5. *Thomas O'Malley* (1933).
6. *Michael K. Reilly* (1913).
7. Gerald J. Boileau (1931).
8. George J. Schneider (1935).
9. Merlin Hull (1935).
10. B. J. Gehrmann (1935).

WYOMING

At large—*Paul R. Greeber* (1935).

ALASKA

Anthony J. Dimond (1933).

HAWAII

Samuel W. King (1935).

PHILIPPINE ISLANDS

1. Pedro Guevara (1923).
2. Francisco A. Delgado (1935).

PUERTO RICO

Santiago Iglesias (1933).

PERSONNEL OF THE ADMINISTRATION

By Milton Conover

Professor, Yale University

CHANGES IN THE DEPARTMENTS

Secretary Morgenthau.—Since January, 1934, only one change has been made in the Cabinet, that being in the Secretaryship of the Treasury, where Henry Morgenthau, Jr., who had been Acting Secretary of the Treasury since Nov. 17, 1933, during the leave of absence of Secretary William H. Woodin, was appointed to be the Secretary of the Treasury on Jan. 1, the appointment being confirmed by the Senate on Jan. 8, 1934. Secretary Morgenthau, the son of former Ambassador Morgenthau, was born in New York City in 1891, and educated at Cornell University. Before entering the Cabinet, he had served as Chairman of the Governor's Agricultural Advisory Commission of New York, Conservation Commissioner of New York, Chairman of the Federal Farm Board, Governor of the Farm Credit Administraton, and Under Secretary of the Treasury of the United States. For several years he has been publisher of the *American Agriculturist*, one of the oldest farm publications in America. Thomas J. Coolidge, succeeded Henry Morgenthau, Jr., as Under Secretary of the Treasury.

State Department.—In the Department of State, the position of "Executive Assistant to the Secretary" was created superior to the Under Secretary of State, the incumbent being Hugh S. Cumming, Jr.

Post Office Department. — Ambrose O'Connell was made "Executive Assistant to the Postmaster General" *vicè* Harllee Branch.

THE BUREAU CHIEFS

American Council of Education.—From the Office of Education, Commissioner Dr. George F. Zook, formerly President of the University of Akron, resigned and became Director of the American Council of Education in Washington. His vacancy was filled on May 18, 1934, by the appointment of Dr. John Ward Studebaker, former Superintendent of Schools at Des Moines, Iowa. Commissioner Studebaker is a graduate of Leander Clark College, an A.M. of Columbia University, and holds the Honorary LL.D. of Drake University.

Weather Bureau.—Willis R. Gregg became Chief of the Weather Bureau as successor to Charles F. Marvin, who had been with the service since 1884, having been Chief of the Bureau since 1913. Chief Gregg is a graduate of Cornell University, and has served in the Weather Bureau since 1904. Prior to his promotion he had been organizing the Weather service to aid commercial airways' activities for several years. He is the author of learned works on meteorology.

Biological Survey.—Jay Norwood Darling, widely known in cartoonist and journalistic circles as "J. N.

Ding'' or ''Ding,'' was made Chief of the Biological Survey to succeed Paul G. Redington, who had been with the Department of Agriculture nearly 30 years. Chief Darling is a native of Michigan, a graduate of Beloit College, and holds the Litt.D. from Beloit College and LL.D. from Drake University, and is a member of Phi Beta Kappa.

U. S. Shipping Board Bureau.—Director Henry H. Heimann, succeeded H. I. Cone as head of the United States Shipping Board Bureau. Mr. Heimann is a graduate in law from St. Louis University, and had been executive manager of the National Association of Credit Men since 1930.

TERRITORIAL GOVERNORS

Of the Territorial Governors, Joseph B. Poindexter succeeded Lawrence M. Judd as Governor of Hawaii on Jan. 30, 1934. Governor Poindexter is a native of Oregon—born in 1869. He studied at the Ohio Wesleyan University and is a graduate of the Washington University, St. Louis, Law School. He served in judicial capacities in Montana and was United States District Judge in Hawaii under President Wilson.

COMMISSIONERS

I. C. C. and Federal Reserve Board.—Of the Federal Commissioners, but few changes were realized during 1934. In the Interstate Commerce Commission, Hugh M. Tate was made Chairman to relieve William E. Lee who remains with that body, while to the Federal Reserve Board, Marriner S. Eccles was appointed Governor to succeed Eugene R. Black.

The Federal Trade Commission witnessed the appointments of Commissioners M. A. Ayres and Garland S. Ferguson in place of former Commissioners James M. Landis and George C. Mathews, leaving one vacancy unfilled on Dec. 31.

The United States Tariff Commission likewise suffered two unfilled vacancies caused by the death of Commissioner Collier and the retirement of Dr. John Lee Coulter, former President of North Dakota Agricultural College.

The United States Board of Tax Appeals received Bolan B. Turner in place of William C. Lansdon.

The Federal Power Commission was completed by the appointment of Clyde L. Seavey to the last vacancy.

The Federal Deposit Insurance Corporation of three members remained with only two due to the retirement of E. G. Bennett.

The Federal Emergency Administration of Public Works, ''The PWA,'' was depleted by the retirement of its Deputy Administrator, Col. Henry M. Waite, famous as the former City Manager of Dayton, O.

The National Recovery Administration, ''The NRA,'' underwent a dramatic change through the spectacular departure of General Hugh S. Johnson, who was replaced by a National Industrial Recovery Board of five members, Clay Williams, A. D. Whiteside, Sidney Hillman, Leon C. Marshall of Brookings Institution, and Prof. Walton H. Hamilton of Yale University Law School, and formerly of Brookings Institution.

The Alien Property Custodianship was transferred to the Department of Justice as the Alien Property Bureau, with former Custodian Urey Woodson as the Director.

The Reconstruction Finance Corporation still maintained one unfilled directorship besides that vacated by Director Harvey C. Couch.

The Federal Home Loan Bank Board accepted Henry L. Hoagland *vicè* Walter H. Newton.

Other reorganization measures caused personnel adjustments in the Commissions. The Federal Radio Commission, as such, was abolished and its work transferred to the Federal Communications Commission. The National Labor Board and the Executive Council, likewise were abolished, as such, while the National Emergency Council was reorganized by Executive Order on Oct. 29, 1934, so as to be composed of such members as the President might designate including The President of the United States and each of the heads of the Cabinet Departments, the Director of the Budget, the Administrators of Agricultural Adjustment, and of the Federal

Emergency Relief; the Chairmen of the Reconstruction Finance Corporation, Tennessee Valley Authority, Federal Home Loan Bank Board, Federal Trade Commission, National Industrial Recovery Board, Federal Alcohol Control Administration, Federal Deposit Insurance Corporation, Federal Power Commission, Federal Communications Commission, Securities and Exchange Commission; the Governors of the Farm Credit Administration and of the Federal Reserve Board; The Director of Emergency Conservation Work, the Advisor on Consumer Problems, the Federal Coordinator of Transportation, the Federal Housing Administrator and the Executive Director.

Donald R. Richberg was made Executive Director, and given a leave of absence from his duties as General Counsel of the NRA. Through the Executive Order, he was given the power to ''appoint, subject to the approval of the President, without regard to the Civil Service laws or the Classification Act of 1923, as amended, fix the compensation and prescribe the duties and authority of such officials and employees'' as might be deemed necessary for the purposes of the President.

The Executive Director was empowered to avail himself of the services of the personnel of any National Administrative Agency upon the consent of such agencies, and ''with the consent of the State or municipality concerned, may utilize such State and local officials and employees as he may deem necessary'' in much the same manner as President Coolidge proposed to utilize the personnel of State and Municipal officers in the enforcement of the Eighteenth Amendment.

THE BRAIN TRUST

BY E. FRANCIS BROWN

ASSOCIATE EDITOR, *Current History*

ORIGIN OF THE GROUP

Every so often a writer throws off a phrase which lives long after the occasion which called it forth has been forgotten. So has it been with John Kiernan's witty description of the group of experts who advised Franklin D. Roosevelt during the Presidential campaign of 1932. Mr. Kiernan, a staff correspondent of *The New York Times*, called them the ''brain trust.'' Since then ''brain trust,'' depending on one's point of view, has come to symbolize all that is good or bad in the Roosevelt Administration. The brain trust has been assailed as a national menace; it has furnished material for political orations. And yet a brain trust, as such, never existed.

With so much smoke there had to be some fire, and there was. Long before the 1932 campaign Mr. Roosevelt had formed the habit of talking about contemporary social and economic problems with men who had ideas and knowledge. Some of these men were lawyers; some were industrialists and financiers; and some were college professors. Basil O'Connor, Mr. Roosevelt's law partner, and Samuel I. Rosenman, Justice of the New York State Supreme Court, were among them, but to list all those who participated would be impossible for the meetings were informal and the attendance constantly varied.

PERSONNEL

Out of these early gatherings for the exchange of ideas came the later brain trust, though not until, as Governor of New York State, Mr. Roosevelt had made use of various experts. This use of experts, however, had been the practice of his predecessor in the Governorship, Alfred E. Smith, and did not seem out of the ordinary. But the public was unaware of a brain trust's existence until the 1932 Presidential campaign. Then it was that the names of Raymond Moley, Rexford G. Tugwell and Adolf A. Berle, Jr. became familiar.

Louis McHenry Howe, for years personal secretary to the President, may be regarded as the father of the brain trust. Certainly it was Howe who introduced Raymond Moley, professor of public law in Columbia University, to Mr. Roosevelt. Since Moley was a member of the Columbia faculty, it was but natural that sooner or later other members should be brought to the Democratic candidate's attention. In this way Mr. Roosevelt became acquainted with Rexford G. Tugwell, professor of economics in the university, and Adolf A. Berle, Jr., professor of law in the Columbia Law School.

Had these men been merely experts the fact that they had the ear of Mr. Roosevelt would have been passed over. But they were college professors and openly professed liberal views. In the United States, a nation which pretends to revere education but which admits its distrust of knowledge, college professors have often been without honor. Thus the academic background made Mr. Roosevelt's advisers suspect; their liberal ideas laid them open to direct attack. But the onslaught was delayed.

ROOSEVELT'S NEW DEAL ADVISERS

When in the midst of a national crisis Mr. Roosevelt went to Washington, he took with him these men who had aided during the Presidential campaign. He also invited into his Cabinet Henry A. Wallace, Harold L. Ickes and Frances Perkins, each of whom had a reputation for liberalism. Finally, as the New Deal began to take form, creating a host of governmental agencies, many men and women were called to the capital to assume positions in the various organizations which arose. Not a few of these people were called upon to give ideas or advice to the President or to assist in the drafting of legislation.

Collectively this group of officials was often labeled the brain trust, though more exact commentators reserved the term for the smaller number of individuals known to be on close terms with the President. Foremost among these was and is Raymond Moley who for a few months served as Assistant Secretary of State. He has been regarded, and to a certain extent rightly, as the chief "brain truster." At no time, however, has there been agreement upon who was or was not a member of the trust. Rexford G. Tugwell, Assistant and later Under Secretary of Agriculture, was considered an influential member of this mysterious company; so were Adolf A. Berle, Jr., Henry A. Wallace, Secretary of Agriculture; Harold L. Ickes, Secretary of the Interior; Frances Perkins, Secretary of Labor; Hugh S. Johnson, one-time NRA Administrator; Harry L. Hopkins, Federal Relief Administrator, Lewis W. Douglas, former Director of the Budget, and many others. Some men were in high official positions; others, like Mordecai Ezekiel, held inconspicuous posts in the executive departments. Moreover, as events quickly showed, membership in the brain trust was often a very temporary affair.

CONFLICTING DEVELOPMENTS

When the Roosevelt Administration was only a few weeks old, a journalist described the brain trust as "a snare, if not a delusion." "It is," he said, "a jigsaw puzzle of men, many of the pieces not fitting together." For example, Lewis W. Douglas believed in a sound, stable currency, but George F. Warren, professor of agricultural economics in Cornell, and James H. Rogers, professor of political economy in Yale, argued for a managed currency. Ultimately all three were to lose their influence. James P. Warburg, a young banker who belonged for a time within the White House circle, broke definitely with the President over monetary policy. The ideas of Hugh S. Johnson differed fundamentally from those of Rexford G. Tugwell; nor on labor relations did General Johnson and Miss Perkins see eye to eye.

RAYMOND MOLEY ON THE BRAIN TRUST

Raymond Moley—certainly few can speak more authoritatively about the brain trust than he—has said that in a general sense there have been three brain trusts. That concerned with monetary questions was composed of advocates of a managed currency, men like George F. Warren, Irving Fisher and James H. Rogers. Disciples of Felix Frankfurter, the noted professor of law in the Harvard Law School, formed a "trust" which stood for strict regulation of all business. The Securities Act of 1933, drafted in large part by James M. Landis, a former professor of law at Harvard and now a member of the Federal Trade Commission, expressed the philosophy of this second group. The third which, according to Professor Moley, believed in greater cooperation between government and business and agriculture, included Henry A. Wallace, Hugh S. Johnson, Rexford G. Tugwell and Adolph A. Berle, Jr.

All these men, and many others as well, advised the President upon occasion. Though at times a particular individual would seem to have the ascendancy, the real truth was probably expressed by Raymond Moley when he said: "The President has utilized the thinking and expert service of many schools of thought, shaping them all into a single pattern." It is well to recall also that Louis McHenry Howe once took a newspaper correspondent into his office and, pointing to a series of filing cabinets, said: "There is the brain trust."

PARTISAN ATTACKS

But though there were lawyers and business men and bankers in the brain trust, the group as a whole was popularly believed to comprise college professors with dangerously radical ideas. Such at least was the basis of partisan attack upon the brain trust and those members singled out for particular attention. In a well-known magazine a writer expressed this hostile view when he described the brain trust as "government by amateurs—college boys, irrespective of age—who, having drunk deep, perhaps, of the Pierian spring have recently taken some hearty swigs of Russian vodka."

This running attack on the brain trust came to a head in the Spring of 1934, with the famous Wirt incident. On March 23, during a House hearing on the Stock Exchange bill, it was stated that, in the summer of 1933, members of the brain trust had told William A. Wirt, a well-known educator of Gary, Ind., that they were preparing for the overthrow of the American social system. A House investigation which soon followed failed to uncover any revolutionary activity and hurt Dr. Wirt more than the brain trust.

Later in the spring the brain trust was again on the grid when the Senate Committee on Agriculture considered Rexford G. Tugwell's appointment as Under Secretary of Agriculture. Dr. Tugwell had long been suspected of harboring radical beliefs and had been publicly accused of "boring from within." Before the Senate committee, however, he easily refuted all charges against him. Thereafter less was heard about the brain trust, and in the 1934 Congressional campaign the Republicans were able to make but little capital out of the existence of these advisers to the President.

Thinking people had meanwhile come to appreciate the need for skilled and expert men in the government service. They found their own sentiments echoed in the words spoken by President Roosevelt at Yale in June, 1934, where he said: "While there has been a certain amount of comment about the use of brains in the national Government, it seems to be a pretty good practice—a practice which will continue—this practice of calling on trained people for tasks that require trained people."

FEDERAL ADMINISTRATIVE ORGANIZATION

By William M. Schuyler

Associate Editor, *The American Year Book*

THE PRESIDENT AND VICE PRESIDENT

President.—Franklin Delano Roosevelt, of New York (Democrat). Sworn into office as President of the United States, March 4, 1933, in succession to Herbert Hoover.

Vice President. — John Nance Garner of Texas (Democrat), Inaugurated Vice President of the United States, March 4, 1933.

Secretaries to the President. — Louis McHenry Howe (Indianapolis); Marvin Hunter McIntyre (Kentucky); Stephen Early (Virginia); Marguerite Le Hand.

Presidential Vacancy.—By Act of Congress, in the case of vacancy occurring in the office of President through the death or removal of both the President and Vice President, the Cabinet officers succeed to the Presidency in the order indicated in the arrangement of the following summary of the executive departments:

DEPARTMENT OF STATE

Secretary of State.—Cordell Hull.

Executive Assistant to the Secretary of State. — Hugh S. Cumming, Jr.

Undersecretary of State.—William Phillips.

Assistant Secretaries of State. — Wilbur J. Carr, R. Walton Moore Francis B. Sayre, Sumner Welles.

Foreign Service Personnel Board. —Wilbur J. Carr, Assistant Secretary of State, chairman; Sumner Welles, R. Walton Moore.

Legal Adviser.—Green H. Hackworth.

Economic Adviser.—Herbert Feis.

Chief Clerk and Administrative Assistant.—Clinton E. MacEachran.

Assistant to the Secretary of State. —Harry A. McBride.

Chiefs of Divisions.—

Far Eastern Affairs.—Stanley K. Hornbeck.

Latin-American Affairs. — Edwin C. Wilson.

Western European Affairs.—Jay P. Moffat.

Near Eastern Affairs.—Wallace S. Murray.

Mexican Affairs.—Edward L. Reed.

Eastern European Affairs.—Robert F. Kelley.

Passport.—Ruth B. Shipley.

Current Information.—Michael J. McDermott.

Foreign Service Administration.—Herbert C. Hengstler.

Protocol and Conferences.—James Clement Dunn.

Treaty.—Charles M. Barnes.

Foreign Service Personnel. — Thomas M. Wilson.

Chiefs of Bureaus.—

Accounts.—William McNeir.

Communications and Records.—David A. Salmon.

Translating.—Emerson B. Christie.

Chiefs of Offices.—

Consular Commercial. — James J Murphy, Jr.

Historical Advisor.—Hunter Miller.

Coordination and Review.—Margaret M. Hanna.

Visa.—John F. Simmons.

Foreign Service Buildings.—Robert J. Phillips (Assistant Chief Acting).

Foreign Service School. — Lowell C. Pinkerton.

DEPARTMENT OF THE TREASURY

Secretary of the Treasury.—Henry Morgenthau, Jr.

Charged with the management of the national finances. He prepares plans for the improvement of the revenue and support of the public credit; superintends collection of the moneys paid from and into the Treasury; controls construction of public buildings, coinage and printing of money, and the administration of the Coast Guard and the Public Health Service; ex-officio chairman of the Federal Reserve Board and of the Federal Farm Loan Board.

Undersecretary of the Treasury.—Thomas J. Coolidge.

Assistant Secretary in Charge of Public Health.—Josephine Roche.

Assistant Secretary in Charge of Customs, Coast Guard and Narcotics. — Stephen B. Gibbons.

Assistant Secretary in Charge of Engraving and Printing and Mint Service.—Lawrence W. Robert, Jr.

Assistants to the Secretary. — John Kieley and Henriette S. Klotz.

Chief Clerk and Superintendent.—F. A. Birgfeld.

Commissioner of the Public Debt.—William S. Broughton.

Commissioner of Accounts and Deposits.—D. W. Bell.

Chiefs of Divisions.—

Appointments.—James E. Harper.
Bookkeeping and Warrants. — A. M. Smith.
Deposits.—E. D. Batchelder.
Loans and Currency. — Marvin Wesley.
Paper Custody.—M. A. Emerson.
Accounts and Audit.—M. R. Loafman.
Research and Statistics.—George C. Haas.
Secret Service.—W. H. Moran.
Supply.—L. C. Spangler.
Head Economist.—L. H. Seltzer.
Chief Disbursing Officer. — Guy F. Allen.
Government Actuary.—A. S. McLeod.

Comptroller of the Currency.—J. F. T. O'Connor.

Has supervision of the national banks, their examination and reports; preparation and issue of national bank circulation; redemption and destruction of national bank notes. Ex-officio member of the Federal Reserve Board in which capacity he draws a salary of $7,000 in addition to the salary of $5,000 attached to the office proper of Comptroller of the Currency.

Treasurer of the United States.—William A. Julian.

Charged with the receipts and disbursement of all public moneys deposited in the Treasury and Sub-Treasuries and in national bank depositaries.

Director of the Bureau of the Budget.—Daniel W. Bell (acting).

Commissioner of the Bureau of Customs.—James H. Moyle.

Commissioner of the Bureau of Internal Revenue.—Guy T. Helvering.

Charged with general supervision of the collection of all internal revenue taxes, including the income tax, and the enforcement of internal revenue laws.

Director of the Bureau of the Mint.—Nellie Tayloe Ross.

Has general supervision of the mints and assay offices.

Commissioner of Narcotics.—H. J. Anslinger.

Register of the Treasury.—W. W. Durbin.

Director of the Bureau of Engraving and Printing.—Alvin W. Hall.

Produces all the securities and similar work of the Government printed from steel plates.

Bureau of the Public Health Service.—Hugh S. Cumming, Surgeon General.

Charged with the framing and enforcement of regulations for the prevention of the introduction and spread of contagious disease; supervision of the quarantine service of the United States, and supervision of the marine hospitals.

Coast Guard.—Rear Admiral Harry G. Hamlet, Commandant.

Office of the Supervising Architect.—L. A. Simon, Supervising Architect.

Custom House.—Charles R. Lewis, Deputy Collector in Charge.

DEPARTMENT OF WAR

Secretary of War.—George H. Dern.

The Assistant Secretary of War.—Harry H. Woodring.

Assistant Chief Clerk.—Frank M. Hoadley.

Executive Assistant to the Secretary of War.—Oliver J. Grimes.

Executive to the Assistant Secretary of War.—Lt. Col. Earl McFarland.

Clerk to the Secretary of War.—John W. Schott.

War Department General Staff.—General Douglas MacArthur, Chief of Staff; Major General Hugh A. Drum, Deputy Chief of Staff.

Office of the Chief of Cavalry.—Major General Leon B. Kromer, Chief.

Chief of Field Artillery.—Major General Upton Birnie, Jr.

Chief of Coast Artillery.—Major General William F. Hase.

Chief of Infantry.—Major General Edward Croft.

Chief of Chaplains. — Alva J. Brasted.

The Adjutant General. — Major General James F. McKinley.

The Inspector General. — Major General John F. Preston.

The Judge Advocate General. — Major General Arthur W. Brown.

The Quartermaster General. — Major General L. H. Bash.

Chief of Finance.—Major General Frederick W. Coleman.

Surgeon General.—Major General Robert U. Patterson.

Chief of Engineers.—Major General E. M. Markham.

Chief of Ordnance.—Major General W. H. Tschappat.

Chief Signal Officer.—Major General Irving J. Carr.

Chief of the Air Corps.—Major General B. D. Foulois.

Chief of the Bureau of Insular Affairs. — Brigadier General Creed F. Cox.

Philippine Government. — Gov. General, Frank Murphy.

Puerto Rico Government.—Governor, Blanton Winship.

Chief of the National Guard Bureau. — Major General George E. Leach.

Chief of the Chemical Warfare Service.—Major General Claude E. Brigham.

The Army War College.—Major General George S. Simonds, Commandant.

The Army Industrial College. — Col. Harry B. Jordan.

DEPARTMENT OF JUSTICE

Attorney General.—Homer S. Cummings. Represents the United States in all legal matters.

Solicitor General.—James C. Biggs.

Assistant to the Attorney General.—William Stanley.

Assistant Attorneys General. — Harold M. Stephens, George C. Sweeney, Frank J. Wideman, Joseph B. Keenan, Harry W. Blair (Division of Customs).

Assistant Attorney General, Bureau of Customs.—Joseph R. Jackson.

Director of the Bureau of Investigation.—J. Edgar Hoover.

Executive Assistant to the Attorney General.—Ugo J. A. Carusi.

Administrative Assistant.—Charles E. Stewart.

General Agent and Chief Clerk.—John W. Gardner.

Assistant Chief Clerk and Appointment Clerk.—Charles B. Sornborger.

Chief of the Division of Mails and Files.—Robert M. Moore.

Chief of the Division of Supplies and Printing.—Edward N. Bodholdt.

Librarian.—George Kearney.

Director of the Bureau of Prisons.—Sanford Bates.

Attorney in Charge of Pardons.—James A. Finch.

POST OFFICE DEPARTMENT

Postmaster General.—James A. Farley.

Executive Assistant to the Postmaster General.—Ambrose O'Connell.

Secretary to the Postmaster General.—William J. Bray.

First Assistant Postmaster General.—William W. Howes.

Second Assistant Postmaster General.—Harllee Branch.

Third Assistant Postmaster General.—Clinton B. Eilenberger.

Fourth Assistant Postmaster General.—Smith W. Purdum.

Comptroller.—William L. Slattery.

Director of Parcel Post.—John A. Brennan.

Solicitor.—Karl A. Crowley.

Chief Post Office Inspector. — Kildroy P. Aldrich.

DEPARTMENT OF THE NAVY

Secretary of the Navy. — Claude A. Swanson.

The Assistant Secretary of the Navy.—William D. Bergman.

Chief Clerk.—F. S. Curtis.

Chief of Appointment Division.—Vacant.

Chief of Division of Records. — Charles T. Ogle.

Budget Officer. — James O. Richardson.

Island Governments.—
- Guam.—Captain George A. Alexander, Governor.
- American Samoa.—Captain Otto C. Dowling, Governor.
- Virgin Islands.—Dr. Paul M. Pearson, Governor.

Chief of Naval Operations.—Admiral William H. Standley.

Chief of the Bureau of Navigation.—Rear Admiral W. D. Leahy.

Chief of the Bureau of Yards and Docks.—Rear Admiral Norman M. Smith.

Chief of the Bureau of Ordnance.—Rear Admiral H. R. Stark.

Chief of the Bureau of Construction and Repair.—Rear Admiral Emory S. Land.

Chief of the Bureau of Engineering.—Rear Admiral Samuel M. Robinson.

Chief of the Bureau of Supplies and Accounts.—Rear Admiral Christian J. Peoples.

Chief of the Bureau of Medicine and Surgery. — Rear Admiral P. S. Rossiter.

Chief of the Bureau of Aeronautics.—Rear Admiral Ernest J. King.

Judge Advocate General. — Rear Admiral C. C. Bloch.

Naval Consulting Board.—Thomas Robins, Secretary.

Compensation Board. — Rear Admiral W. L. Capps (retired), senior member.

General Board. — Rear Admirals Frank H. Clark, Clark H. Woodward, W. R. Sexton, J. W. Greenslade, Captain M. K. Metcalf, Commander Ellis S. Stone, Lieutenant Commander Wilder D. Baker.

President of the Board of Medical Examiners.—Rear Admiral Middleton S. Elliot.

President of the Naval Examining Board.—Rear Admiral Frederick J. Horne.

President of the Naval Retiring Board.—Rear Admiral Middleton S. Elliot.

Naval Dispensary.—Captain Edgar L. Woods.

Navy Yard and Station, Washington, D. C.—Rear Admiral Joseph R. Defrees, Commandant.

Naval Medical School. — Captain Harold W. Smith.

Navy Hospital. — Captain Curtis B. Munger.

Attendance on Officers. — Lieutenant Commander Leo C. Thyson.

President of the Board for Examination of Medical Officers.—Captain Harold W. Smith.

President of the Board of Examination of Dental Officers.—Captain Harold W. Smith.

Headquarters Marine Corps. — Major General John H. Russell, Commandant; Brigadier General David D. Porter, Adjutant and Inspector; Brigadier General Hugh Matthews, Quartermaster; Brigadier General George Richards, Paymaster.

Marine Barracks.—Colonel Emile P. Moses, commanding.

DEPARTMENT OF THE INTERIOR

Secretary of the Interior.—Harold L. Ickes.

Charged with pensions, public lands, Indian Affairs, geological surveys, reclamation of arid lands, and mines.

First Assistant Secretary.—Theodore A. Walters.

Assistant Secretary. — Oscar L. Chapman.

Administrative Assistant. — Ebert K. Burlew.

Chief Clerk. — Floyd E. Dotson (acting).

Solicitor.—Nathan R. Margold.

Supervisor of Classification.—John Harvey.

Commissioner of the General Land Office.—Fred W. Johnson.

Commissioner of the Bureau of Indian Affairs.—John Collier.

Commissioner of the Office of Education.—John W. Studebaker.

Director of the Geological Survey.—W. C. Mendenhall.

Commissioner of the Bureau of Reclamation.—Elwood Mead.

Director of the National Park Service.—Arno B. Cammerer.

Director of the Bureau of Mines.—John W. Finch.

Territorial Officials.—

Alaska.—John W. Troy, Governor.

Hawaii. — Joseph P. Poindexter, Governor.

The Alaska Railroad.—Otto F. Ohlson, General Manager.

DEPARTMENT OF AGRICULTURE

Secretary of Agriculture.—Henry A. Wallace.

Assistant Secretary.—Milburn L. Wilsen.

Assistants to the Secretary.—Paul H. Appleby, C. B. Baldwin, James D. Le Cron.

Director of Extension Work.—C. W. Warburton.

Director of Personnel. — W. W. Stockberger.

Director of Information.—Milton S. Eisenhower.

Solicitor.—Seth Thomas.

Librarian.—Claribel R. Barnett.

Office of Experiment Stations. — James T. Jardine, Chief.

Weather Bureau.—Willis R. Gregg, Chief.

Bureau of Animal Industry.—John R. Mohler, Chief.

Bureau of Dairy Industry.—O. E. Reed, Chief.

Bureau of Plant Industry.—Frederick D. Richey, Chief.

Forest Service.—F. A. Silcox, Forester and Chief.

Bureau of Chemistry and Soils.—Henry G. Knight, Chief.

Bureau of Entomology. — Lee A. Strong, Chief.

Bureau of Biological Survey.—Jay N. Darling, Chief.

Bureau of Public Roads.—Thomas H. MacDonald, Chief.

Bureau of Agricultural Economics.—Nils A. Olsen, Chief.

Bureau of Home Economics. — Louise Stanley, Chief.

Grain Futures Administration.—J. W. T. Duvel, Chief.

Food and Drug Administration.—W. G. Campbell, Chief.

DEPARTMENT OF COMMERCE

Secretary of Commerce.—Daniel C. Roper.

Assistant Secretaries.—John Dickinson, Ewing Y. Mitchell.

Administrative Assistant to the Secretary.—Malcolm Kerlin.

Solicitor.—South Trimble, Jr.

Chief Clerk and Superintendent.—E. W. Libbey.

Disbursing Clerk. — Charles E. Molster.

Appointments.—Edw. J. Gardner.

Publications.—Thomas F. McKeon.

Purchases and Sales. — Walter S. Erwin.

Librarian.—Charlotte L. Carmody.

Director of Air Commerce.—Eugene L. Vidal.

Director of the Bureau of Census.—William L. Austin.

Director of the Bureau of Foreign and Domestic Commerce.—Claudius T. Murchison.

Director of the Bureau of Standards.—Lyman J. Briggs.

Commissioner of the Bureau of Fisheries.—Frank T. Bell.

Commissioner of the Bureau of Lighthouses.—George R. Putnam.

Director of the Coast and Geodetic Survey.—R. S. Patton.

Director of the Bureau of Navigation and Steamboat Inspection. — Joseph B. Weaver.

Commissioner of the Patent Office.—Conway P. Coe.

DEPARTMENT OF LABOR

Secretary of Labor. — Frances Perkins.

Charged with the duty of fostering, promoting and developing the welfare of the wage earners of the United States and also working towards a solution of the labor problems.

The Assistant Secretary. — Edward F. McGrady.

Second Assistant Secretary.—A. J. Altmeyer.

Assistants to the Secretary.—Turner W. Battle, Richardson Saunders.

Solicitor.—Charles E. Wyzanski, Jr.

Chief Clerk.—Samuel J. Gompers.

Director of Conciliation.—Hugh L. Kerwin.

Commissioner of Labor Statistics.—Isador Lubin.

Commissioner General of Immigra-

tion and Naturalization.—Daniel W. MacCormack.

Chief of the Children's Bureau.—Katherine F. Lenroot.

Director of the Women's Bureau.—Mary Anderson.

United States Employment Service.—W. Frank Persons, Director.

United States Housing Corporation.—Turner W. Battle, President.

MISCELLANEOUS EXECUTIVE SERVICES

National Recovery Administration.—S. Clay Williams, Chairman.

Civil Service Commission.—Harry B. Mitchell, President; Leonard D. White, Mrs. Lucille F. McMillin.

Interstate Commerce Commission.—William E. Lee, Chairman; Balthasar H. Meyer, Clyde B. Aitchison, Joseph B. Eastman, Frank McManamy, Patrick J. Farrell, Claud R. Porter, Hugh M. Tate, Charles D. Mahaffie, Carroll Miller, Walter M. W. Splawn.

United States Employees' Compensation Commission.—Mrs. Jewell W. Swoffard, Chairman; Harry Bassett, John M. Morin.

General Accounting Office.—J. R. McCarl, Comptroller General of the United States.

United States Railroad Administration. — Henry Morgenthau, Jr., Secretary of the Treasury, Director General.

Federal Reserve Board. — Henry Morgenthau, Jr., Chairman; J. F. T. O'Connor, Comptroller of the Treasury; Marriner S. Eccles, Governor; Adolph C. Miller, Charles S. Hamlin, George R. James, J. J. Thomas, M. S. Szymczak.

Federal Trade Commission. — Ewin L. Davis, Chairman; Charles H. March, Garland S. Ferguson, Jr., W. A. Ayres, Otis B. Johnson, Secretary.

United States Tariff Commission. ——Robert L. O'Brien, Chairman; Thomas Walker Page, Vice Chairman; Oscar B. Ryder, Edgar B. Brossard, Sidney Morgan, Secretary.

United States Board of Tax Appeals.—Eugene Black, Chairman.

Federal Power Commission. — Frank R. McNinch, Chairman; Basil Manley, Vice Chairman; Herbert J. Drane, Claude L. Draper, Clyde L. Seavey.

Federal Home Loan Bank Board.—John A. Fahey, Chairman.

Federal Oil Conservation Board.—The Secretary of the Interior, Chairman; the Secretary of War, the Secretary of the Navy, the Secretary of Commerce.

Federal Emergency Administration of Public Works.—Harold L. Ickes, Administrator.

Federal Communications Commission.—Chairman Eugene O. Sykes.

Federal Housing Administration.—James A. Moffett, Administrator.

Veterans' Administration.—Brigadier General Frank T. Hines, Administrator; Edward W. Morgan, Director of Pensions; Bynum Cash, Director of the Bureau of National Homes.

Federal Board for Vocational Education.—Frances Perkins, Chairman.

United States Board of Mediation.—William M. Leiserson, Chairman.

United States Shipping Board.—J. C. Peacock, Director.

National Advisory Committee for Aeronautics. — Joseph S. Ames, Chairman.

Alien Property Bureau. — Urey Woodson, Director.

Board of Surveys and Maps of the Federal Government.—Lt. F. B. Wilby, Chairman.

The Commission of Fine Arts. — Charles Moore, Chairman.

Reconstruction Finance Corporation.—Jesse H. Jones, Chairman.

Smithsonian Institution.—

Established 1846 under the terms of the will of James Smithson for the "increase and diffusion of knowledge among men." The former aim is accomplished by the promoting of original, scientific research, and the latter by publications and lectures. The affairs of the Institution are managed by a Board of Regents which cooperates with the Government and with National scientific bodies. Under the direction of the Institution are the National Museum, charged with preserving and utilizing objects of art and ethnological, geological and mineralogical collections belonging to the United States; Bureau of American Ethnology, National Gallery of Art, Freer Gallery of Art, National Zoölogical Park, Astrophysical Observatory, and the Regional Bureau for the United States International Catalogue of Scientific Literatures.

Secretary.—C. G. Abbott.

National Academy of Sciences.—W. W. Campbell, President; Frederick E. Wright, Home Secretary; Thomas H. Morgan, Foreign Secretary; Isaiah Bowman, Chairman of the National Research Council.

Pan-American Union.—L. S. Rowe, Director General.

American National Red Cross.—John Barton Payne, Chairman.

Tennessee Valley Authority.—Arthur E. Morgan, Chairman.

Farm Credit Administration. — W. I. Myers, Governor.

Federal Coordinator of Transportation.—Joseph B. Eastman.

Federal Emergency Relief Administration.—Harry L. Hopkins, Administrator.

Securities and Exchange Commission.—Joseph P. Kennedy, Chairman.

FEDERAL CIVIL SERVICE

By Clinton Rogers Woodruff

Director of Public Welfare, Philadelphia

INCREASE IN EMPLOYES OUTSIDE COMPETITIVE CLASSIFIED SERVICE

On June 30, 1934, the entire number of employes in the Federal executive civil service was 661,094 of which number 461,587 were under the civil service law and rules and 199,507 were outside the competitive classified service. On the same date in 1933, the number of employes was 565,432 of which 456,096 were under the civil service law and rules and 109,336 were outside the competitive classified service. The increase in a year of approximately 90,000 positions to which the competitive-examination system does not apply is traceable to the creation of new governmental agencies specifically exempted from the provisions of the civil service law and rules because of their emergency or temporary character. Now that some of these new agencies promise to become permanent parts of the Federal Government, the Federal Civil Service Commission has recommended that they be brought within the scope of the civil service law with certain exceptions by Executive order as may seem to be advisable. It is contemplated that incumbents may be required to qualify in appropriate noncompetitive examinations as a condition of their inclusion within the classified service. Vacancies occurring thereafter would be filled through open competition.

CIVIL SERVICE REFORM LEAGUE'S APPEAL TO THE PRESIDENT

In a letter addressed to President Roosevelt by the chairman of the Executive Committee of the National Civil Service Reform League on Aug. 15, Mr. Roosevelt was urged to give "thoughtful attention" to the tendency toward restoration of the spoils system. The President was reminded of his statement made to the League a year earlier in which he said that "the merit system in civil service is in no danger at my hands; but on the contrary, I hope that it will be extended and improved during my term as President." The League's letter expressed concern over the existing situation in the following terms:

"We venture to express our belief that the whole problem of the use of offices and employments under the Government for political patronage purposes is becoming a matter of extreme concern. It seems to us bound to intensify, in many quarters, a growing fear of bureaucracy; it threatens, we think inevitably, the orderly and economical working out of recovery policies, and in an even broader sense, is likely to affect public confidence in government operations.

"We trust that you will appreciate that the League has but one object, and has no desire to add to the burdens of the administration of your office; but we feel that we owe it to the cause we represent to express our conviction that the present tendency toward so broad a restoration of the spoils system, and of spoils practices, merits your thoughtful attention."

POSITIONS AND EMPLOYES BROUGHT INTO COMPETITIVE CLASSIFIED SERVICE

(Fiscal year, 1934)

Executive order:	
May 15, 1931: War Department	2
Feb. 2, 1932: Department of Justice	1
June 21, 1932: Treasury Department	13
May 18, 1933: Farm Credit Administration	249
Rule II, section 6:	
Treasury Department:	
Public Health Service, Washington, D. C.	3
Division of Disbursements, Washington D. C.	6
War Department:	
Quartermaster Corps:	
Alexandria, Va.	1
Philippine Islands	17
Engineer Department at large:	
Boston, Mass.	2
Buffalo, N. Y.	6
Galveston, Tex.	52
Jacksonville, Fla.	17
Memphis, Tenn.	8
Milwaukee, Wis.	1
Mobile, Ala.	20
Montgomery, Ala.	5
Nashville, Tenn.	5
New Orleans, La.	45
New York, N. Y.	24
Norfolk, Va.	14
Philadelphia, Pa.	67
Pittsburgh, Pa.	13
Portland, Ore.	7
San Francisco, Calif.	6
Savannah, Ga.	30
Seattle, Wash.	17
Vicksburg, Miss.	16
Wilmington, Del.	3
Wilmington, N. C.	5
Interior Department:	
Bureau of Indian Affairs, Washington, D. C.	3
National Park Service, Washington, D. C.	9
Rule X, section 13:	
Department of Agriculture, Office of Experiment Stations, Alaska	1
War Department, Quartermaster Corps, Manila, P. I.	3
Total	671

ANALYSIS OF EMPLOYES AND POSITIONS

The table above includes only cases in which a position was brought within the classified service and the incumbent accorded a classified status before July 1, 1934. It does not include positions brought into the classified service if the incumbents did not acquire a classified status during the fiscal year.

On June 30, 1934, there were 661,094 civilian employes in the executive branch of the Government, while on June 30, 1933, there were 565,432. The increase was 95,662, or 16.92 per cent.

On June 30, 1934, there were 573,988 employes, or 86.8 per cent of the total, in the permanent and emergency class, while the temporary force numbered 87,106, or 13.2 per cent.

At the close of the fiscal year, 1934, there were 87,196 employes in the District of Columbia and 573,898 outside the District, or 13.2 and 86.8 per cent, respectively. At the close of the fiscal year, 1933, there were 65,437 in the District of Columbia, and 499,995 outside the District.

The number of positions in the competitive classified service increased during the year from 456,096 to 461,587, an increase of 5,491. At the end of the fiscal year 1934, the competitive classified service represented 69.8 per cent of the entire Federal executive civil service.

ALCOHOL TAX UNIT APPOINTMENTS

Because of the McKeller rider to the Treasury Appropriation bill, all investigators in the Alcohol Tax Unit had to take a Civil Service examination and approximately 80 per cent failed to pass. The number of men who failed was approximately 1,000. Just prior to the recent elections 400 to 500 new investigators were appointed in this unit, all Democrats. These men were given what is known as provisional appointments and their names were taken from the Democrats of the list of those who had applied to take the Civil Service examination. The appointments in many instances were made before the appointees had taken the examination and in all instances before the papers had been marked and graded.

FEDERAL JUDICIAL ORGANIZATION

By William M. Schuyler

Associate Editor, *The American Year Book*

SUPREME COURT OF THE UNITED STATES

Charles Evans Hughes (New York), Chief Justice of the United States, appointed 1930.

Willis Van Devanter (Wyoming), appointed 1910.

James Clark McReynolds (Kentucky), appointed 1914.

Louis Dembitz Brandeis (Kentucky), appointed 1916.

George Sutherland (Utah), appointed 1922.

Pierce Butler (Minnesota), appointed 1923.

Harlan F. Stone (New Hampshire), appointed 1925.

Owen J. Roberts (Pennsylvania), appointed 1930.

Benjamin N. Cardoza (New York), appointed 1932.

Officers of the Supreme Court:

Clerk.—Charles Elmore Cropley.

Deputy Clerks.—Reginald C. Dilli, Hugh W. Barr.

Marshall.—Frank Key Green.

Reporter.—Ernest Knaebel.

CIRCUIT COURT OF APPEALS OF THE UNITED STATES

First Circuit.—Mr. Justice Brandeis; George Hutchins Bingham (New Hampshire), Scott Wilson (Maine), James M. Morton, Jr. (Massachusetts).

Second Circuit.—Mr. Justice Stone; Martin T. Manton (New York), Learned Hand (New York), Thomas W. Swan (Connecticut), Augustus N. Hand (New York), Harrie Brigham Chase (Vermont), Julian W. Mack (New York).

Third Circuit.—Mr. Justice Roberts; Joseph Buffington (Pennsylvania), J. Warren Davis (New Jersey), Victor B. Woolley (Delaware), J. Whitaker Thompson (Pennsylvania).

Fourth Circuit. — Mr. Chief Justice Hughes; John J. Parker (North Carolina), Elliott Northcott (West Virginia), Morris A. Soper (Maryland).

Fifth Circuit.—Mr. Justice Cardozo; Nathan P. Bryan (Florida), Rufus E. Foster (Louisiana), Samuel H. Sibley (Georgia), Joseph C. Hutcheson, Jr. (Texas).

Sixth Circuit.—Mr. Justice McReynolds; Charles H. Moorman (Kentucky), Xenophon Hicks (Tennessee), Julian W. Mack (New York), Charles C. Simons (Michigan), Florence E. Allen (Ohio).

Seventh Circuit.—Mr. Justice Van Devanter; Samuel Alschuler (Illinois), Evan A. Evans (Wisconsin), William M. Sparks (Indiana), Louis Fitzhenry (Illinois).

Eighth Circuit.—Mr. Justice Butler; Kimbrough Stone (Missouri), vacant, John B. Sanborn (Minnesota), Archibald K. Gardner (South Dakota), Joseph W. Woodrough (Nebraska).

Ninth Circuit.—Mr. Justice Sutherland; Curtis D. Wilbur (California), William H. Sawtelle (Arizona), Francis A. Garrecht (Washington), Frank H. Norcross (Nevada).

Tenth Circuit.—Mr. Justice Van Devanter; Robert E. Lewis (Colorado), Orie L. Phillips (New Mexico), George T. McDermott (Kansas), Sam G. Bratton (New Mexico).

UNITED STATES COURT OF CUSTOMS AND PATENT APPEALS

William J. Graham (Illinois), Presiding Judge, appointed 1924.

Oscar E. Bland (Indiana), appointed 1923.

Charles Sherrod Hatfield (Ohio), appointed 1923.

Finis James Garrett (Tennessee), appointed 1929.

Irvine L. Lenroot (Wisconsin), appointed 1929.

COURT OF APPEALS OF THE DISTRICT OF COLUMBIA

George E. Martin, Chief Justice.
Charles H. Robb.
Josiah A. Van Orsdel.
William Hitz.
D. Lawrence Groner.

COURT OF CLAIMS OF THE UNITED STATES

Fenton Whitlock Booth (Illinois), Chief Justice, appointed 1928.

William Raymond Green (Iowa), appointed 1928.

Benjamin H. Littleton (Tennessee), appointed 1929.

Thomas S. Williams (Illinois), appointed 1929.

Richard Smith Whaley (South Carolina), appointed 1930.

SUPREME COURT OF THE DISTRICT OF COLUMBIA

Alfred A. Wheat, Chief Justice.
James M. Proctor.
F. Dickinson Letts.
Daniel W. O'Donoghue.
Jennings Bailey.
Peyton Gordon.
Oscar R. Luhring.
Joseph W. Cox.
Jesse C. Adkins.

UNITED STATES CUSTOMS COURT

Charles P. McClelland, Presiding Judge.
Walter H. Evans.
William J. Tilson.
Jerry B. Sullivan.
George Stewart Brown.
Frederick W. Dallinger.
Genevieve R. Cline.
David H. Kincheloe.
William J. Keefe.

UNITED STATES MARSHAL'S OFFICE

United States Marshal. — John P. Colpoys.

Chief Deputy Marshal.—Stephen B. Callahan.

UNITED STATES ATTORNEY'S OFFICE

United States Attorney, District of Columbia.—Leslie C. Garnett.

Assistants.—John W. Fihelly, David A. Hart, Walter M. Shea, Charles B. Murray, Isadore I. Goldstein, Julian I. Richards, John J. Wilson, Roger Robb, David A. Pine, Harry L. Underwood, Karl Kindleberger, George E. McNeil, J. Edward Burroughs, Jr., Cecil R. Heflin, Henry A. Schweinhaut, Samuel F. Beach, Louis L. Whitestone, Clinton D. Vernon, Allen J. Krouse, Matthew C. Cary.

FEDERAL PROSECUTIONS AND JUDICIAL DECISIONS

BY ERWIN N. GRISWOLD

PROFESSOR, HARVARD UNIVERSITY

VALIDITY OF NEW DEAL LEGISLATION

General—The Supreme Court did not announce any decision during the year, 1934, directly involving the validity or effect of any of the novel legislation of the Roosevelt Administration. The Court did, however, decide a number of state cases arising out of the economic emergency, and two of these were hailed by many as foreshadowing ultimate approval of the new Federal statutes. Such predictions are, of course, extremely hazardous. Diverse facts often produce diverse results, and decisions sustaining state power are not determinative when the issue raised is one of the validity of Federal action.

Obligation of Contracts Clause.—The first of these decisions was Home Building & Loan Ass'n *v.* Blaisdell, 290 U. S. 398, where the Court, by a majority of five to four upheld the constitutionality of a Minnesota statute authorizing, under carefully prescribed conditions, the extension of the redemption period following mortgage foreclosures until May 1, 1935. Since the statute did little more than revive a traditional power of courts of equity (which created the ''equity of redemption'') the actual result should not have been surprising. But the Court placed the decision on broader grounds, holding that the existence of an emergency might be the proper occasion for the exercise of powers reserved by the states. These arguments were met by a powerful dissent which argued that the prospect of economic stress was the very occasion for the inclusion of the obligation of contracts clause in the Constitution. Four months later, however, it became apparent that the previous case was not all-embracing in effect, but that each so-called emergency statute would stand or fall on its own reasonableness under the circumstances. In W. B. Worthen Co. *v.* Thomas, 292 U. S. 426, the Court held invalid an Arkansas statute of March, 1933, which exempted the proceeds of insurance policies from the claims of creditors. The statute could not be sustained as an emergency measure, the Court held, since it was not limited to the emergency and set up no conditions apposite to emergency relief. Under these decisions the obligation of contracts clause appears to have but little greater effect in limiting state activity than the due process clause of the Fourteenth Amendment.

Milk Price Fixing.—Another type of state activity resulting from the economic emergency was upheld in Nebbia *v.* New York, 291 U. S. 502, which involved a New York statute authorizing a commission to fix the minimum price of milk. Again the decision was on a five-to-four division. The majority reexamined many earlier opinions of the Court and cleared away a mass of artificiality which had grown up around the resolving phrase ''affected with a public interest.'' That this decision would not be given a narrow application was indicated in the fall when the Court decided Hegeman Farms Corp. *v.* Baldwin, in which another order under the same statute, relating to the wholesale price of milk, was upheld against the dealer's contention that the price fixed would not allow it to conduct business at a profit.

Constitutional Cases in Lower Court.—Many cases involving the NRA and the AAA, both civil and criminal, were determined in the lower Federal courts. Although the Government was successful in the great majority of these, it prevailed only about half of the time when the issue of constitutional validity was directly involved. Since the question of constitutionality is one which can be settled only by the Supreme Court, these lower court decisions are of little or no permanent significance except as indicating the issues to be met and as breaking the way for ultimate determinations by the Supreme Court.

The NRA.—Although there were a great many skirmishes in lower courts involving the validity of codes and other regulations under the NRA, no one of these was important enough to be called a battle. Towards the end of the year it seemed likely that a case was at last en route for ultimate decision by the Supreme Court. In United States *v.* Belcher, the District Court for the Northern District of Alabama sustained a demurrer to an indictment charging a violation of the wages and hours of labor provisions of the code for the lumber and timber products industries. The Department of Justice filed a direct appeal in the Supreme Court and this was about to be heard as the year ended.

Two cases arising under § 7(a) of the Recovery Act, the provision designed to insure collective bargaining, should also be mentioned. One, United States *v.* Weirton Steel Co., dragged on throughout the year. After a long hearing, the district court denied the temporary injunction sought by the Government. The court held that it was denied the power to grant the injunction by the provisions of the Norris-LaGuardia Anti-injunction Act. Thus, that statute, which was designed to aid the cause of labor, became instead a shield to employers in its first significant application by a court. Thereafter several hundred witnesses were heard on the merits through long weeks of hearings and the case was yet to be argued and decided when the year closed. Another proceeding was that before the National Labor Relations Board in the case of the Houde Engineering Corporation. The Board held that under § 7(a) a committee designated by the majority of the employees in a plant was entitled to recognition as the exclusive bargaining agency of all the employees. After considerable delay, steps were taken to enforce this ruling in the courts, but no judicial determination was reached within the year. The statute is so vaguely drawn that the courts may well hesitate to give it a very drastic construction, quite apart from any questions of its validity.

Oil Regulation.—A distinct part of the activity under the Recovery Act centers in the Petroleum Administration. Facing a problem which has been a very difficult one for many years, the Administration met with indifferent success. In United States *v.* Smith, several individuals were indicted for violations of the oil code and regulations made by the President. The district court held the prosecution without constitutional authority, and an appeal was taken to the Supreme Court which might have been decided before the middle of the year. But on the Government's motion the argument was postponed to the fall. When that time came, the Government dismissed the appeal, stating that its action was taken because of a clerical error made in promulgating the regulations in question. The fact that the indictment was hastily drawn and contained at least formal defects also apparently contributed to the decision to abandon the case. In Ryan *v.* Amazon Petroleum Corp., 71 F. (2d) 1 (C.C.A. 5th), however, the validity of the oil regulations was upheld in a civil case. This case was argued on appeal before the Supreme Court near the close of the year.

The AAA.—In Yarnell *v.* Hillsboro Packing Co., 70 F. (2) 435 (C.C.A. 5th), the Government won a procedural victory and obtained the reversal of an injunction which had been granted against the enforcement of orders made under the authority of the Agricultural Adjustment Act relating to the production of citrus fruit in Florida. The court, however, did not find it necessary to pass on the validity of the legislation or of the action taken under it. Conflicting results were reached in the lower courts as to the validity of price-fixing provisions in various milk licenses under the Act. Another aspect of the Agricultural Adjustment Act was held valid in Franklin Process Co. *v.* Hoosick Mills, where the District Court for Massachusetts upheld the constitutionality of the processing taxes levied on certain agricultural commodities. This result seems likely to be sustained in the higher courts since the power of the Federal Government to impose excise taxes is relatively unlimited. But the validity of the so-called tax on floor stocks, which is a part of the processing tax scheme, seems more doubtful because of the argument that it is a direct tax requiring apportionment under the Constitution.

Gold Legislation.—In In re Missouri Pacific Railroad Co., 7 F. Supp. 1, the District Court for the Eastern District of Missouri unheld the validity of the resolution of Congress declaring clauses requiring payment in gold coin to be against public policy, and held that such an obligation was payable in any legal tender. This case will be heard by the Supreme Court early in 1935, together with four other cases involving related questions under the gold legislation.

Railroad Pension Act.—In Alton Railroad Co. *v.* Railroad Retirement Board, the Supreme Court of the District of Columbia held unconstitutional the Railroad Retirement Act passed by Congress at the close of its session in June, 1934. The Court found the Act defective because it was not limited in its application to employees engaged in interstate commerce, and because some of its provisions were, in the court's opinion, so arbitrary as to amount to a taking of property without ''due process of law.'' The Department of Justice announced that a prompt appeal would be taken from this decision.

Farm Mortgage Moratorium Act.—The so-called Frazier-Lemke Farm Mortgage Moratorium Act of 1934 was held unconstitutional by the District Court for Maryland in In re Bradford, 7 F. Supp. 665. The contrary result was reached, however, in In re Radford, by the District Court for the Western District of Kentucky, and in In re Cope, by the District Court for Colorado. The question was not passed on by an appellate court during the year.

PWA Grants.—Questions concerning the validity of grants by the Public Works Administration for municipally owned utilities were raised in several cases. In City of Allegan *v.* Consumers Power Co., 71 F. (2d) 477 (C.C.A. 6th), the Court refused to pass on either the scope or the constitutionality of that part of the Recovery Act relating to public works, holding that a private utility did not have a status either as a Federal or a local taxpayer entitling it to question the right of the Public Works Administrator to provide funds for such purposes. In Missouri Public Service Co. *v.* City of Concordia, 8 F. Supp. 1, however, the District Court for the Western District of Missouri, at the suit of a local privately owned power company, enjoined the city from accepting or using any PWA funds for the purpose of erecting a municipal lighting plant, on the ground that Congress ''neither intended, nor did it have the power, to aid intrastate commerce in this way.''

OTHER CONSTITUTIONAL QUESTIONS

Two acts of Congress were held unconstitutional during the year, thus making a material addition to the list of some 60 statutes which have met that fate through the years. Both acts in question were enacted during the Roosevelt Administration, but neither represented an important part of the Administration's policy. In Booth *v.* United States, 291 U. S. 339, the Court held that retired United States judges remained judicial officers and that an act reducing their salaries was invalid under Section 1 of Article III of the Constitution. In Lynch *v.* United States, 292 U. S. 571, a statute purporting to repeal all laws relating to yearly renewable term insurance issued under the War Risk Insurance Act was held invalid under the Fifth Amendment. The statute was designed to put an end to claims arising out of this insurance since they had become very stale with the passing of many years. The Court held that Congress was without power to reduce expenditures by repudiating the contractual obligations of the United States.

Eighteenth Amendment Repeal.—Two important constitutional cases arose out of the repeal of the Eighteenth Amendment. In United States *v.* Chambers, 291 U. S. 217, the Court held that the repeal operated to prevent the prosecution of offenses committed while the prohibitory amendment remained in effect, since the repealing amendment contained no saving clause. In Ohio *v.* Helverng, 292 U. S. 360, the Court reaffirmed the position it had previously taken in South Carolina *v.* United States, 199 U. S. 437, and held that the states were not constitutionally immune from Federal taxation in conducting a liquor dispensary system.

Campaign Expenditures. — One other constitutional case deserves mention. In Burroughs & Cannon *v.* United States, 290 U. S. 534, the Court had to consider the Federal Corrupt Practices Act of 1925, requiring a report of expenditures made in campaigns for the election of Presidential or Vice-presidential electors. The statute was assailed on the ground that such electors are officers of the states rather than of the Federal Government. The Court agreed with this contention, but held that the electors performed a Federal function and that Congress had power to take steps to insure the purity of their election. A contrary decision would have left the Nation strangely impotent to deal with a problem of obviously national concern.

FEDERAL TRADE COMMISSION AND ANTI-TRUST LAWS

Powers of F.T.C.—Several cases involving the powers of the Federal Trade Commission were passed upon by the Supreme Court during the year. In Federal Trade Commission *v.* Algoma Lumber Co., 291 U. S. 67, the Court upheld an order of the Commission requiring Pacific Coast lumber dealers to desist from the practice of selling lumber made from western yellow pine under the trade name of "California White Pine." The opinion disclosed a somewhat greater willingness to support the orders of the Commission than had been indicated in previous years. A similar attitude was given effect in Federal Trade Commission *v.* R. F. Keppel & Bros., 291 U. S. 304, where the Court upheld an order of the Commission requiring certain candy manufacturers to cease selling "penny candy" so arranged and offered for sale as to make the element of chance a material inducement to the purchaser. Such candy was sold primarily to school children, and it was held that the Commission could properly declare the practice to be an unfair method of competition since a large share of the industry properly regarded it as unscrupulous.

Regulation of Stock Ownership.—Two cases, involving the regulation of stock ownership under the Clayton Act, resulted in sharp differences of opinion. In Arrow-Hart & Hegeman Electric Company *v.* Federal Trade Commission, 291 U. S. 587, the court divided five to four, the majority holding that where the Commission had started a proceeding to compel a holding company to divest itself of the voting stock of two competing operating companies, the Commission's power to proceed further was terminated when all the properties of the operating companies were acquired through mergers by a new corporation. The minority argued forcefully that an offender against the Clayton Act should not be allowed to evade the authority of the Commission and defeat the statute by taking refuge behind a cleverly erected screen of corporate dummies. A similar question was presented in Interstate Commerce Commission *v.* Pennsylvania Railroad Co., 291 U. S. 651, involving the validity of an order of that Commission requiring the Railroad to divest itself of its shares of stock in the Lehigh Valley and the Wabash railroads. The controversy, however, resulted in no decision for the judgment below (which held the order unauthorized by the statute) was affirmed by necessity, by an equally divided court. The tendencies of the cases were consequently conflicting. The Federal Trade Commission was for almost the first time given broad support with respect to its orders involving unfair competition. So far as proceedings under the Clayton Act were concerned, however, the decisions of the year seriously restricted administrative activity.

Anti-trust Laws. — Two decisions of importance were handed down during the year in proceedings under the anti-trust laws, one involving a corporate combination and the other a combination of labor. In United States *v.* Sugar Institute, a district court held that the Sugar Institute was an illegal combination in restraint of trade and ordered its dissolution. Obviously, proceedings under the anti-trust laws are at least difficult to reconcile with much of the activity under the Recovery Act, which is designed to promote business combinations in spite of the vague prohibition in the statute of "monopolies and monopolistic tendencies." In Local 167 *v.* United States, 291 U. S. 293, the Supreme Court affirmed an injunction granted by a lower court against labor organizations in New York which had engaged in a highly organized scheme and conspiracy which had dominated the live poultry business in that city. This proceeding, though under the Sherman Act, was primarily in aid of the criminal prosecutions by which the Government had earlier been largely successful in breaking up racketeering activities in this industry.

CRIMINAL LAW

Insull Case.—Although the Department of Justice received constant publicity during the year for its activities in the apprehension of notorious criminals, few criminal prosecutions of general importance were actually tried in the Federal courts during the year. Doubtless the outstanding Federal criminal trial was that of Samuel Insull and many of his associates, on charge of using the mails to defraud. The trial lasted several weeks and resulted in a prompt acquittal. The jury evidently concluded that Insull's failure was the result of understandable errors of judgment in a period of great stress. His effort to escape prosecution by seeking refuge in Greece was apparently regarded as not significant. The verdict was interpreted in some places as signifying a more friendly sentiment on the part of the people towards big industrialists and financiers.

Appellate Procedure.—One development of outstanding importance with respect to Federal criminal prosecutions was the promulgation by the Supreme Court, pursuant to authority granted by Congress, of rules of practice to govern procedure after plea or verdict of guilty in criminal cases in the lower Federal courts. These rules became effective on Sept. 1. Time has not yet been sufficient to show their effectiveness, but they should operate to speed up considerably the appellate processes in Federal criminal trials. The example set is one which might well be followed by the states, which are in general much slower in disposing of criminal appeals than the Federal courts.

MISCELLANEOUS

Power of Comptroller General. — Miguel *v.* McCarl, 291 U. S. 442, raised important questions concerning the power of the Comptroller General. The Court rejected that officer's contention that his decisions on fiscal matters are conclusive, and held that the ruling in question was so plainly wrong that disbursing officers of the Army were not justified in complying with it. The status and authority of the Comptroller General present questions of extreme difficulty both as a matter of the construction of the statutes creating the office and as a matter of political theory as to what the extent of his powers should be for the maximum benefit to the public. Although the Court did not uphold the extreme position taken by the Comptroller General and his staff, the opinion did not aid greatly in determining the exact limits of his jurisdiction.

Congressional Investigations.—McCracken *v.* Jurney, 72 F. (2d) 560, presented a new aspect of the perennial problem of the extent of the powers of the Houses of Congress in conducting investigations. The Court of Appeals of the District of Columbia, with two of the five judges dissenting, held that the Senate did not have authority to impose punishment for a contemptuous act already committed. Such punishment, the majority held, was criminal in its nature and could be imposed only through a proceeding in court under the criminal law. A proceeding to review this decision was pending before the Supreme Court at the close of the year.

III. THE NATIONAL GOVERNMENT

ABBREVIATIONS OF U. S. GOVERNMENT AGENCIES

By William M. Schuyler

Associate Editor, *The American Year Book*

NEW DEAL INITIALLING

The American Year Book, 1933, presented to its readers a list of the more important and the more frequently referred to agencies of the United States Government which were associated with the operations of the so-called New Deal and which had become better known by their initials than by their full official designations. The year 1934 witnessed a considerable extension of this list, and the extended list is appended for the information and convenience of the reader.

AAA—Agricultural Adjustment Administration
AC—Aviation Commission
CAB—Consumers Advisory Board
CC—Consumers Council
CCC—Commodity Credit Corporation
CES—Committee on Economic Securities
CRI—Committee for Reciprocity Information
CSB—Central Statistical Board
CWA—Civil Works Administration
DC-VBC—District of Columbia-Virginia Boundary Commission
EC—Executive Council
ECPC—Executive Commercial Policy Committee
ECW—Emergency Conservation Work
EHFA—Electrical Home and Farm Authority
E-IB—Export-Import Banks
FACA—Federal Alcohol Control Administration
FCA—Farm Credit Administration
FCC—Federal Communications Commission
FCT—Office of Federal Coordinator of Transportation
FDIC—Federal Deposit Insurance Corporation
FEAPW—Federal Emergency Administration of Public Works
FECW—Federal Emergency Conservation Work
FERA—Federal Emergency Relief Administration
FHA—Federal Housing Administration
FHLBB—Federal Home Loan Bank Board
FHLBS—Federal Home Loan Bank System
FPI—Federal Prisons Industries
FSEC—Federal Securities and Exchange Commission
FSHC—Federal Subsistence Homesteads Corporation
FSRC—Federal Surplus Relief Corporation
FTZB—Foreign Trade Zone Board
GSC—Grain Stabilization Corporation
HOLC—Home Owners Loan Corporation
IAB—Industrial Advisory Board
IBRT—Interdepartmental Board on Reciprocal Treaties
ICC—Interstate Commerce Commission
IEC—Industrial Emergency Council
ITPC—Interdepartmental Trade Policy Committee
LAB—Labor Advisory Board
NAC—National Archives Council
NAE—National Archives Establishment
NCB—National Compliance Board
NEC—National Emergency Council
NHPC—National Historical Publications Commission
NIRA—National Industrial Recovery Act
NIRB—National Industrial Recovery Board
NLLB—National Longshoremen's Labor Board
NLRB—National Labor Relations Board
NMB—National Mediation Board
NPB—National Planning Board
NRA—National Recovery Administration

NRS—National Reemployment Service
NSLRB—National Steel Labor Relations Board
PA—Petroleum Administration
PEC—The President's Executive Council
PRA—Presidential Reemployment Agreements
PWA—Public Works Administration
RFC—Reconstruction Finance Corporation
RRB—Railroad Retirement Board
SAB—Science Advisory Board
SAPFT—Special Adviser to the President on Foreign Trade
SBPW—Special Board of Public Works
SEC—Securities and Exchange Commission
SES—Soil Erosion Service
SHD—Subsistence Homstead Division
SRB—State Recovery Board
TCFT—Temporary Committee on Foreign Trade
TVA—Tennessee Valley Authority
TVACI—Tennessee Valley Associated Cooperatives Inc.
USES—United States Employment Service
USIS—United States Information Service

CHRONOLOGY OF THE NATIONAL GOVERNMENT

(From *The New York Times,* January 1, 1935)

JANUARY

Jan. 20—The gold or monetary bill is passed, 360 to 40.

Jan. 22-30—The U. S. House of Representatives adopts a naval appropriation bill carrying $286,000,000 and a naval replacement bill carrying $500,000,000 for new ships; the latter is passed by the Senate, March 6.

Jan. 27—Administration's monetary bill passed, 66 to 22, opposed by one Democrat—Glass of Virginia.

FEBRUARY

Feb. 20—Petition to Ways and Means Committee signed by a third of the House demands a vote on a cash bonus of $2,400,000 to veterans.

Feb. 21—Tax Revision bill passed, 388 to 7, expected to yield an additional revenue of $258,000,000.

Feb. 27—Independent officers bill loses all its economic significance provided by the President.

MARCH

March 10—Rye, barley, flax, grain sorghum and peanuts are added to the House bill on processing tax and is so passed.

Committee on Coinage favorably reports on two silver bills: The Feisinger would have the Treasury purchase 1,500,000,000 ounces of silver and issue silver certificates against it; the Dies would accept payment in silver, at 25 per cent in excess of its market price, for surplus agricultural products sold abroad.

March 12—The Patman bonus bill, which was passed in June, 1932, with a vote of 211 to 176, again passes, 295 to 125; it would cost $2,400,000,000 and "discount" at 100 per cent World War veteran certificates.

March 14—The St. Lawrence Waterway treaty with Canada fails to win the two-thirds ratifying vote, with 46 for and 42 against.

March 19—By a vote of 46 to 39 the cotton crop control bill is passed.

The Dies silver bill is passed, 257 to 112, with 20 out of 117 Republicans voting for it.

March 27-28—The President suffers his first defeat by Congress enacting over his veto the bill restoring cuts in veteran pensions and pay cuts of government employes; the House, by a vote of 310 to 72, with 209 Democrats voting for the bill; the Senate, 63 to 27, with twenty-nine Democrats voting for the bill.

APRIL

April 4—Senate bill inhibiting loans to defaulting debtor nations is passed. Bill restricting production of beet sugar to 1,550,000 tons and cane sugar to 260,000 is passed.

Voting higher taxes on incomes between $4,000 and $32,000, the income tax is expected to produce annually nearly half a billion.

April 5—The LaFollette proposal for 6 to 71 per cent surtaxes, and 4 to 59 per cent is accepted.

April 10—The Dies silver bill intended for agricultural relief is so altered in committee that it becomes a boon for silver monopolists.

April 11—By 43 to 36 a 10 per cent blanket increase in income-tax rates is voted.

April 13—The Revenue bill as it left the House was expected to yield $263,000,000; as adopted by the Senate, 53 to 7, it is expected to yield $481,000,000, but on May 3 the Senate removes a 10% supertax on all incomes, the House having declined to accept it, and in this form the bill goes to the President, who signs it a week later.

April 19—The sugar-control bill is passed—49 to 18.

April 20—Banking and Currency Committee approves a revised stock-exchange control bill with modified provisions to meet Wall Street criticism.

MAY

May 2—Financial Committee reports favorably an amended bill giving the President power to fix tariff rates in certain circumstances.

May 4—Senator Fletcher, chairman of the Banking and Currency Committee, offers amendments to Securities Act as business is said to be hampered by it. These amendments are attached to the Senate's own stock-exchange control bill, which is passed on May 12.

The Rayburn bill regulating Stock Exchange transactions and limiting loans to 55 per cent of market value of collateral is passed, 280 to 84.

May 15—Congress accepts measure for Federal control over telegraph, telephone and wireless.

May 22—The President lays a compromise silver bill before Congress; on May 31 the House approves, 263 to 77, and the Senate, with six Democrats voting against, 54 to 25; it would establish an ultimate monetary base of 25 per cent silver and 75 per cent gold, and expects international agreements to coordinate the double standard.

May 29—Air-mail bill fixing rates and prohibiting alliances between carriers and airplane manufacturers is passed.

May 31—Congress ratifies new treaty with Cuba abrogating the Platt amendment.

JUNE

June 1—The war debt situation is reviewed by the President, in the light of the Hoover moratorium, in a special message to Congress. Americans will henceforth view inability of debtor nations to pay in the light of their expenditures for armaments. (The President merely uses the term "unproductive expenditures.")

June 2—Bill for Federal control, by commission, of telegraph, telephone and wireless, is passed.

June 4—A deficiency appropriation bill, for the benefit of the administration, is passed, 309 to 46; it carries $1,178,000,000, but by authorizing the President to use RFC cash and PWA credits, it visions $6,000,000,000.

Tariff bill, favorably reported on May 2, is passed.

June 6—"The Securities and Exchange Act of 1934" is signed (the Fletcher-Rayburn bill) with the Senate provision for a new Securities and Exchange Commission, the House's requirement for a 45 per cent margin under the control of the Federal Reserve Board, and a rider modifying "the Act of 1933."

June 13—The housing bill, planning home construction on broad scale, protection against fore-closure proceedings, and relief for investors in building-loan associations, is passed, 176 to 19.

June 15—At the demand of William Green, head of the A. F. L., the strike ordered at steel works is held in abeyance until a board of investigation and adjustment is appointed. The President received authority from Congress on June 16. Appropriations of $500,000,000 for drought relief and $1,750,000,000 for other relief projects are contained in an omnibus relief and rehabilitation bill adopted, with a total for emergency relief of $3,716,000,000, including balances from unexpended funds.

June 16—The housing bill is passed, 71 to 12.

June 18—Tobacco control bill is passed, to help growers who have reduced their acreage, by imposing tax on leaf tobacco.

Farm bankruptcy bill giving debtor five years to pay overdue mortgage on instalment plan, with final payment in sixth year.

Regular session of Senate of Seventy-third Congress ends.

Simultaneously with the Senate, the Farm bankruptcy and the tobacco-control bills are passed, and the regular session ends.

June 27—Railway Pension Act providing compulsory retirement at the age of 65 with an annuity is signed, having been adopted by the Senate June 14 and the House June 15.

JULY

July 15—American Bar Association special committee hit NRA legal powers, and declared the rapid growth of independent commissions and executive agencies which exercised judicial and legislative powers, was seriously undermining judicial branch of government.

NOVEMBER

Nov. 6—The Democratic party swept the nation in the general election.

Nov. 10—The New York convention of the American Veterans Association asks the President to move for a constitutional amendment taking from Congress the power to grant pensions to veterans or their dependants.

DECEMBER

Dec. 11—Supreme Court members, while hearing arguments on the constitutionality of the National Recovery Act as applicable to oil production, expressed dissatisfaction with the way certain government records were kept, pointing out that "official copies" of Presidential executive orders issued under the Oil Code could not easily be obtained.

Dec. 18—The right of Congress to regulate the value of the dollar and to abrogate the gold clauses in private and public contracts was defended in briefs filed with the Supreme Court by Attorney General Cummings, who will argue for the government when the court hears four cases on Jan. 8.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Academy of Political and Social Science, 3457 Walnut Street, Philadelphia, Pa.

American Bar Assn., 1140 N. Dearborn Street, Chicago, Ill.

American Political Science Assn., Angell Hall, University of Michigan, Ann Arbor, Mich.

Commercial Law League of America, 111 W. Monroe St., Chicago, Ill.

Honest Ballot Assn., Inc., 70 Pine Street, New York City.

League for Political Education, 113 West 43rd St., New York City.

National Assn. of Legal Aid Organizations, School of Law, Duke University, Durham, N. C.

National Civil Service Reform League, 519 Fifth Ave., New York City.

National Institute of Public Administration, 302 E. 35th Street, New York City.

DIVISION IV

STATE GOVERNMENT

STATE ADMINISTRATION AND LEGISLATION

By John M. Mathews

Professor, University of Illinois

ADMINISTRATIVE REORGANIZATION

General.—Without going into specific changes in particular states, it may be said in general that the various activities of the states in attempting to deal with the numerous problems of the depression have resulted both in the creation of additional administrative agencies and in the reorganization of existing agencies. Previous reorganizations in many states have undoubtedly enabled them to execute their functions more economically and efficiently and, during a period of financial stringency, these qualities have become especially important and valuable.

Planning Boards. — Among the newly created state administrative agencies which are primarily the outgrowth of the economic depression are state planning commissions or boards, which have been created in more than half of the states. These state boards are intended to work in cooperation with national planning agencies toward general recovery and permanent readjustment of basic social conditions. In announcing the creation of the state planning board in New York, Governor Lehman of that state outlined its field as follows: ''Such problems as the better distribution of population and of industry, the use of land in the vicinity of large population centers, especially the tendency toward premature subdivision of such land, transportation (in all its phases), the subsistence farm, scattered farm settlements, the wise utilization of submarginal land, reforestation, watershed and stream protection, and the preservation of the beauty of the countryside.''

Liquor Control.—The throwing of the problem of liquor control back upon the states represents a tendency toward decentralization which is contrary to the general tendency. It has brought about in many states the designation or creation of some state agency, usually a commission, to which is given regulatory powers. The most striking recent development in liquor control, however, is that a number of states have adopted the state liquor authority plan under which the state assumes a monopoly over the retail sale of liquor through its own stores. This plan is intended to eliminate the private profit motive in liquor sales. The state liquor commission is given broad administrative authority. When the state goes into the retail liquor business, the question arises as to whether Federal internal revenue taxes are applicable to state-owned liquor. While details of procedure differ in different states, it has been held by the courts that, as the business is conducted in some states, *e.g.* Pennsylvania, the Federal tax is collectible because the state is engaged in a proprietary function.

ADMINISTRATION OF JUSTICE IN CALIFORNIA

Appointment of Judges.—Several noteworthy changes in the organization and work of administering justice in California were adopted by constitutional amendment in November. One amendment provides that, in counties adopting the plan, judges are to be appointed by the governor subject to confirmation by the majority of a commission composed of the Chief Justice of the Supreme Court, the presiding judge of the District Court of Appeals and the Attorney-General. A judge thus appointed who has served one term of six years and desires to continue may have his name placed on the ballot without competition, and the voters decide whether to continue him or not.

Criminal Procedure.—By constitutional amendment, three improvements in criminal procedure were adopted in California. These are that the defendant's failure to testify in a criminal case may be commented upon by the court or district attorney, that the judge may advise the jury as to the facts in the case, and that a defendant may plead guilty before a committing magistrate.

State Department of Justice.—By constitutional amendment, California also established a real state department of justice. The attorney-general is made the responsible head of the department, with power to enforce the law uniformly and adequately in every county. He is given direct supervision over district attorneys, sheriffs and other law enforcing officers in counties in all matters pertaining to their duties. He may assist any district attorney in the discharge of his duties or if, in his opinion, any state law is not being adequately enforced in any county, he may assume the powers and duties of the district attorney in prosecuting such violations of law. The adoption of this amendment should bring about more efficient and adequate enforcement of law through centralization of power and responsibility in the hands of the attorney-general.

THE NEBRASKA UNICAMERAL LEGISLATURE

One of the most important developments in recent years in state governmental organization occurred in November when the voters of Nebraska adopted a constitutional amendment providing for a one-house legislature. This plan is to be put into effect beginning with the legislative session of 1937. This one-house legislature is to consist of not more than 50 nor less than 30 members. The aggregate salaries of all members is to be $37,500 per annum, divided equally among them. Upon the regular session of the legislature meeting in 1935 is placed the duty of deciding the exact number of members of the one-house legislature within these limits, and of dividing the state into a like number of districts, from each of which one member shall be elected. Although too much reliance must not be placed upon reorganization of governmental machinery, the chances seem to be that the unicameral legislature of Nebraska will prove to be a more efficient and responsible organ of government than the bicameral legislature.

OTHER LEGISLATIVE DEVELOPMENTS

Kansas.—The Kansas Legislative Council, created in 1933, has gone about its work in a businesslike manner and is giving careful consideration to the formulation of a legislative program. Through the aid of a grant from the Spelman Fund, a research department has been set up, which will doubtless be of considerable assistance to the Council in its work.

Colorado.—Pre-session conferences of the legislature have been held in several states, and such a conference was held in Colorado in 1934. A large majority of the legislature attended the three-day session, at which problems connected with legislation at the forthcoming regular session were given consideration.

Louisiana. — Two special sessions of the Louisiana legislature were held late in the year, at which a large number of bills were passed in rapid fire order. They were designed to increase the control over the state now exercised by United States Senator Huey Long.

NATIONAL AND INTERSTATE RELATIONS OF STATES

BY JOHN M. MATHEWS
PROFESSOR, UNIVERSITY OF ILLINOIS

FEDERAL AID TO THE STATES

The problem of extending relief to the unemployed during the period of the economic depression has become increasingly greater and beyond the resources of most states and cities. The funds for such relief have come partly out of taxes and partly out of borrowings. The credit of the Federal Government has remained unimpaired, whereas many cities and at least one state have defaulted on their bonds. In extending financial assistance to the states, the Federal Government is merely continuing a policy begun long before the depression. The previous policy of the Government, however, was to extend financial aid on a 50-50 basis, the states contributing an amount equal to the Federal appropriation. During the depression, however, most states were not able to do this, and by far the larger share of the burden of relief fell on the Federal Government.

To some extent the relief furnished was merely a dole, but an effort was made as far as possible to pay out money to needy persons as compensation for productive work. The FERA, CWA, and PWA continued as agencies for the distribution of such funds. The relief allotments made by the FERA to 47 states and two territories for the one month of November amounted to over $135,000,000. Federal appropriations for highways and other public works were greatly increased, without requiring the states to match the Federal funds dollar for dollar. The Hayden-Cartwright Act passed by Congress in 1934 authorized the appropriation of $450,000,000 for Federal participation with the states in highway building, of which $200,000,000 was a Federal grant and the remainder was the regular Federal aid for the fiscal years, 1936 and 1937, to be matched by the states on a 50-50 basis.

Since the country generally seemed to be making some headway toward recovery, Federal authorities looked forward to a time in the near future when the states would be able to resume the former practice of matching the Federal appropriation dollar for dollar. In signing the Hayden-Cartwright Act, President Roosevelt pointed out that notice was given to the state legislatures of 1935 that ''unmatched emergency grants are to be abandoned and that there is to be a return to the established plan which requires that the states shall meet the Federal Government half way in paying the cost of new construction.''

Although the Federal Relief Administration has endeavored not to stifle local autonomy and state initiative in matters of relief, it is almost inevitable that the expenditure of large sums of Federal money in the states has enabled the Government to dictate to the states the methods of spending the money. The Federal Relief Administrator has declined, in a number of instances, to assist a state in dealing with its relief problems unless it clearly appeared that the state was unable to do so.

FEDERAL-STATE COOPERATION IN CRIME CONTROL

Hard roads and high-powered automobiles enable criminals to escape across state lines so easily that states are found to have insufficiently wide jurisdiction to enable them to deal with organized crime effectively. Consequently, the cooperation of the Federal Government in criminal law enforcement has become more necessary. Further advance in such cooperation was brought about in 1934 through the enactment of a group of laws by Congress. This was the result of the submission to Congress by the Department of Justice of a series of bills recommended for enactment. Among the acts passed may be mentioned: making it a Federal offense for a criminal to flee across state lines to escape prosecution for a felony;

extending the scope of the Dyer Act so as to cover any stolen property of considerable value, and strengthening the Lindbergh Kidnapping Act of 1932 so as to cover the sending of ransom or extortion messages by the use of telephone, telegraph or radio across state lines and providing that, if a kidnapped person has not been released after seven days, interstate transportation shall be assumed for the purpose of establishing Federal jurisdiction. Congress also passed an act to grant the consent of Congress to any two or more states to enter into agreements or compacts for cooperation in the prevention of crime and in the enforcement of their respective criminal laws through the establishment of such agencies as they deem desirable. These measures go far in enabling the Federal and state governments to present a united front in the war on the criminal.

INTERSTATE RELATIONS

Cooperation Compacts. — The insufficiently wide jurisdiction of a single state to deal effectively with such a matter as crime tends, as we have seen, to bring about an increase of Federal interference and control in matter. Extreme Federal centralization, however, in matters that are primarily the business of the states should be avoided if possible. A substitute for Federal centralization in dealing with such matters may be found in interstate cooperation through agreements and compacts. Such compacts are not likely at first to be drawn up between all the states but merely between a group in a particular region of the country.

Labor Legislation. — The importance which is attached to the movement for interstate agreements was shown by the creation in 1933 of the Massachusetts Commission on Interstate Compacts Affecting Labor and Industries. In May, 1934, a conference of Northwestern states was held at Concord, N. H., at which seven states signed an agreement relating to labor legislation with special reference to minimum wage standards. This is the first interstate compact in the labor field. Other states may ratify and set up permanent commissions to carry on interstate relations in this field. This movement has resulted in the establishment of the Interstate Conference on Labor compacts.

Conflicting Taxation. — Another problem which may be grappled with by the method of interstate agreement is that of conflicting taxation. This problem was studied in 1934 at the Boston meeting of the Interstate Commission on Conflicting Taxation.

Interstate Conferences. — During 1934, numerous groups of state officials met in conferences for the purpose of discussing common problems. Among these may be mentioned the conference of state governors at Macinac Island, Michigan; the whole vehicle conference of delegates from eleven western states at Salt Lake City, and the conference of state tax officials at Chicago. Many new groups of state officials have recently reorganized interstate conferences. Among these may be mentioned the National Association of State Police Executives, the National Conference of Liquor Administrators, and the National Conference of Judicial Councils. Through these various agencies the states are working together towards more uniform action in grappling with their common problems.

STATE CONSTITUTIONS, REFERENDA, AND INITIATIVES

By Walter E. Sandelius

Professor, University of Kansas

GENERAL

California, with 23 propositions, led the states this year in the number of matters referred to state-wide vote of the people, which, together with 11 charter amendments, had all to be studied by the voters of San Francisco and decided upon in the same election, justifying, perhaps, the comments in the press at the time that many of them, especially those referred by the legislature, were too technical, and, taken together, all too numerous to make intelligent consideration by the voter at all possible. In more than one instance legislative amendments had so vitiated the initial purpose that it could well be said, as it *was* said, of a certain Proposition 19 obscurely affecting the limitations upon the incurring of state indebtedness, that "like Tristam Shandy, it was the victim of somebody's carelessness at time of birth," and the original sponsors were, on the vote, arrayed against it. The electorate of Louisiana, with the advice and impelling drive of Huey Long to lean upon, voted on 14 constitutional amendments and approved them all. The ratio of approved to rejected measures here, of course, was somewhat out of the ordinary, although possibly throughout the nation a general restlessness appears, not only in the relatively large number of propositions voted upon as compared with preceding years, but also in the greater tendency to approve than to reject the proposals referred. The total number of propositions submitted to the electorates of the country during the year was 153 in the 36 states represented in the votes. Of these, 91 were adopted and the remaining 62 rejected. One hundred and thirteen of the 153 were constitutional amendments, of which 68 were approved. Forty were state-wide propositions other than amendments, of which 23 were adopted. Of the 113 amendments referred, 95 were initiated by legislative action, 18 on initiative of the people. Of the 40 other questions referred, 28 were submitted by the legislature, 12 by popular initiative.

Of the 153 questions voted upon, 35 might be classified as having to do primarily with matters of taxation, 17 with unemployment aid, pensions, and other matters of economic relief, 18 with liquor control, 58 with state and local governmental organization and powers, though a number in the last group aim primarily to impose debt limitations upon local government units. Questions of public utility control, with some exceptions, were kept considerably out of the picture.

ECONOMIC RELIEF

Sizable bond issues solely or mainly for unemployment aid were voted by New York, New Jersey, Rhode Island, Illinois, California, the largest being that of New York for $40,000,000. Throughout the nation some $135,000,000 was voted for this purpose. Related in part to these measures of relief were bond issues for the construction of public works authorized by the voters of Missouri, Rhode Island, Nebraska, Maine and Louisiana. The amended constitution of Louisiana, permits the issuance of $68,000,000 road and bridge bonds, and $7,000,000 for a bridge over the Mississippi River at New Orleans. Additional forms of relief adopted, other than in the prevalent proposals to reduce and limit taxes, were: a constitutional amendment, among the many approved by the voters of Louisiana, providing for a tax of ¾ mills to be levied upon all taxable property to provide funds for pensions of $60 monthly for Confederate veterans and their widows; a $30,000,000 bond issue by California to aid war veterans in acquiring homes and farms; in Oklahoma a system of pensions for meritorious and disabled police officers. On the other hand, a proposed constitutional amendment, submitted through popular initiative, to make possible teachers' pensions in Missouri was defeated. Less numerous than measures of direct relief were matters initiated or referred for the purpose of effecting general retrenchment of expenditures. Of the latter, perhaps the most important was one of the so-called Futrell Amendments proposed by the legislature of Arkansas prohibiting the issuance of state bonds or other evidence of indebtedness by the state except for certain purposes denoted in the article amended, and unless approved by a majority of the qualified electors.

TAXATION

Arkansas. — A constitutional amendment was adopted forbidding new taxes or any increase in existing levies except by approval of a majority of the qualified electors or by votes of three-quarters of each house of the General Assembly. An act, adopted upon referendum petition, reduces the penalty on tax delinquent real estate and extends the time for redemption thereof.

Colorado.—An amendment was approved taxing chain stores, the amount being graduated from $2 for one store to $300 for each of 24 or more stores. Defeated was an amendment providing that no excise tax on gasoline or other liquid motor fuel in excess of 3c. per gallon shall be imposed or collected after July 1, 1935.

Florida. — The amended constitution now allows exemption from taxation of homesteads to the value of $5,000 when the property is owned by a resident citizen of Florida, who is head of a family. In amending Article 14 of the state constitution, Florida extended her competition with California from ''fruit and sunshine'' to movie-land romance, exempting from all *ad valorem* taxation movie studios with necessary buildings, land and equipment.

Louisiana.—Seven of the 14 Louisiana amendments dealt directly with taxation, following Huey Long's purpose to shift the tax burden ''from the little fellow to the big fellow.'' These provided for: legislative authority to levy equal and uniform—and they may be graduated—taxes upon net incomes, without exemption to public officials, though with reasonable exemptions allowed, rates being confined to a schedule of from 2% to 6% on individual, and 4% straight on corporation incomes; exemption from state, parish and special taxation of homesteads not exceeding 160 acres, to the extent of $2,000, but liable to municipal taxes except the general city tax levied in New Orleans; reduction of the minimum license fee on private automobiles, trucks and farmers' trucks; exemption of motor vehicles from state, parish and special taxes and authorizing municipalities to make similar exemptions; fixing of maximum rates for special taxes, fixing of maximum rates for school taxes and requiring parishes to reduce rates each time the state support is increased by a specified amount; permitting political sub-divisions to levy fees for liquor license in addition to state fees; removal of the requirement of payment of the poll tax as a qualification to vote.

Michigan.—The Michigan electorate overwhelmingly defeated all six amendments referred, including a proposal to abolish the uniform rule of taxation and to allow a graduated income tax for the support of public schools, together with measures designed to limit the gasoline tax and registration license fees on motor vehicles.

Minnesota.—The constitution was amended to exempt from taxation all household goods and equipment and all farm machinery and equipment. Other amendments were lost.

Mississippi. — A proposed amendment which would authorize the legislature to classify property for the purpose of taxation was not approved.

Montana.—An amendment adopted provides for the levy and collection of individual and corporation income taxes which may be graduated, and for distribution of proceeds to the public schools and to the state government.

Ohio.—Two proposed amendments were defeated, the one seeking to prohibit the taxation as property of motor vehicles on which license taxes had been imposed and paid, the other to limit the motor vehicle fuel tax to 3 c. per gallon, and to restrict the use of such excise taxes to public thoroughfare and related purposes.

Oregon. — A referendum ordered by petition of the people defeated a sales tax bill for school relief.

Texas.—Proposed amendments, one to allow the state to make reasonable classification of property for taxing purposes and to allow the levy of an income tax, the other to subject the lands of the University of Texas to taxation for county and school district purposes, were both rejected.

West Virginia.—A capitation tax amendment imposing an annual tax of $1 upon each inhabitant of the state for support of the schools was defeated.

LIQUOR CONTROL

More states voted wet in the November elections (summarized elsewhere). Maine went wet, by 2 to 1, twice within 1 year, the first time on Federal repeal, and this year on removal of amendment from the state constitution. "The prohibition dike put down by Kansas 54 years ago held firm," and the fact was widely reported in the nation's press. Many states provided systems of state liquor control, several with the aid of popular referendum. In all, 18 questions affecting prohibition and liquor regulation were referred to popular vote.

FUNDAMENTAL CONSTITUTIONAL CHANGES

Nebraska adopted a unicameral legislative system by a 50,000 majority. Beginning with the regular session of 1937 the legislative authority of the state will be vested in a single house of not less than 30 nor more than 50 members chosen from single member constituencies and elected in a non-partisan manner for the term of two years. A rather comprehensive plan to centralize state administration in Colorado failed to pass. In answer to a demand in California that the state constitution be completely and thoroughly revised the voters decided that a constitutional convention shall be called. A similar proposal in Illinois, not having received a constitutional majority, was declared lost. Less fundamental, though unusual enough, was the adoption by Missouri of an amendment authorizing the raising of compensation to members of the Assembly to an amount not exceeding $1,000 per annum plus incidental expenses.

JUDICIAL METHODS

Federal crime prosecution has doubtless influenced the activity of the states in this sphere. Fifteen measures voted upon dealt with judicial methods and organization. California carried four constitutional amendments designed for the curbing of crime. Thus it is provided that court and counsel may comment on failure of defendant to testify in criminal cases, that except in capital cases defendant charged with felony may plead guilty before a committing magistrate, that supreme and appellate court justices, and also superior court judges if counties so desire, shall be made essentially appointive rather than elective as before, that the attorney general shall have powers such as to make of his office essentially a state department of justice. Florida made considerable changes in her judicial organization. Idaho amended the constitution so as to reduce the size of the trial jury for minor cases, civil and criminal, also to provide that selection of judges of the supreme and district courts be non-partisan. A measure for non-partisan election of judges in Michigan, however, failed. An amendment adopted by the people of Oregon provides that, except in capital cases, anyone accused of crime may, with consent of the trial judge, elect to waive jury trial.

HOME RULE AND LOCAL GOVERNMENT

Reform in county government, however much advocated by the experts, makes no very rapid progress. The voters of Texas roundly defeated an amendment designed to give to the Commissioners' Court a general management and control of county affairs and to authorize the legislature "to provide more economical forms of county government," and another that would have authorized the legislature by a two-thirds vote of both houses to create new counties and change the boundaries of existing counties. The electorate of Michigan rejected a county home rule amendment. Idaho rejected a measure by which the commissioners would be the only constitutional officers of the county, the legislature to provide for other officers. Montana, however, accepted an amendment granting the Board of County Commissioners power to consolidate county offices, and the legislature of Florida was authorized to devise a system of uniform city and county government equalized on the basis of population. Two proposals to increase the power of home rule cities were rejected by the voters of Texas.

SUFFRAGE AND ELECTIONS

Louisiana, as stated previously, removed the poll tax as pre-requisite to voting. Mississippi abolished the requirement that all taxes must be paid to qualify as an elector, keeping only the poll tax requirement. Louisiana, to save expense, provided against the necessity of holding uncontested general elections, the governor being authorized in such cases to declare the single candidate elected to office.

WATER POWER RESOURCES

Important proposals to authorize the state to utilize water power resources were defeated by popular vote in California and Oregon.

CONCLUSION

An evident observation, especially from matters not here summarized, is the excessively detailed and technical nature of questions referred to the electorates. At its worst, this may be a serious obstacle to rule by the will of the people, especially when a majority of the ballots cast is necessary to approve, while many a voter frankly ''gives up.'' In Minnesota, four amendments (*i.e.*, all but one of those proposed in this state) were defeated because short of the necessary number of votes, though approved by votes of 2 or 2½ to 1 among those voting on the propositions.

COUNTY AND RURAL GOVERNMENT

By Orren C. Hormell

Professor, Bowdoin College

INCREASE IN PUBLIC INTEREST

Public interest in county and local government continued with increased vigor during 1934. The growing importance of these units of government was recognized by the editors of the *National Municipal Review* with the result that a new Department on County Government was added to the *Review*, beginning with the May issue. The *Review* devoted the October issue to a special number on county government, and Report No. 3 of the Committee on County Government of the National Municipal League was published as a supplement to the February number. Other periodicals in the field of government and political science, including especially the *American Political Science Review*, *Public Management* and *The American City*, gave increased space (1934) to the problems of local government.

Early in the year an American County Association, ''a national organization of county commissioners and officials, devoted to the betterment of county government,'' was formed, with Peter J. Zisch of Milwaukee, Wis., as Executive Director. *Bulletins* Nos. 2 and 3, published June and July, gave pertinent ''Facts About Consolidation of Counties.''

SURVEYS OF LOCAL GOVERNMENT

Numerous surveys of county and local government have been made, or begun, in many states of the Union. Notable among such surveys are: The Government of Nassau County (N.Y.), by the Municipal Consultant Service of the National Municipal League, Thomas H. Reed, Director; Digest of Statutes Relating to County Government in Ohio, by the Governor's Commission on County Government; Survey and Report of the Office of the Clerk of the Courts of Hamilton County, Ohio, by the Cincinnati Bureau of Government Research; The

Operation and Costs of the Sheriff's Office of Schenectady County, N. Y., by the Schenectady Municipal Research Bureau, Inc.; A Study of the Townships of Chester County (Pa.), by the Pennsylvania Economic Council; Financial Survey of Grundy County, Tenn., by the Tennessee Taxpayers' Association; Survey in Fifteen Tenn. Valley Counties (N. C.), made for the TVA by the School of Public Administration of the University of North Carolina.

Surveys on county and rural government are being conducted in many states under the auspices of the FERA. The most notable experiment in county government in connection with relief, however, appears to be that conducted by the New York State Temporary Emergency Relief Administration. Tompkins County is to be (or is being) reshaped into a Model County. The plan includes rural roads, replanning of school districts, recreational centers, and subsistence homesteads. Submarginal lands are to be reforested and ''transplanted marginal farmers will be organized into educational, recreational and social groups with the aid of local agricultural extension supervisors.''

PROGRESS IN REFORM

Los Angeles Project.—The Committee on Governmental Simplification of Los Angeles County, California, has presented a preliminary report in which it recommends the gradual absorption of the function of the 44 municipalities, 151 school districts, 30 fire districts, 42 sewer districts, 96 lighting and maintenance districts and 90 miscellaneous districts (see *Am. Polit. Sci. Rev.* Dec. 1934, p.1085) into a central metropolitan government.

Outlines of Reform Requirements.—The proponents of reform in local government in widely separated states are in general agreement with Professor Anderson of the University of Minnesota who wrote in the April issue of *Public Management* that the outlines of the reform include ''larger and more competent local units and fewer of them—a simplified and responsible government in each one—a merit system and ultimately a professionalized civil service in all units—law enforcement . . .—an adequate and flexible revenue system—modern administrative and financial practices—an honest willingness to meet obligations and pay debts—a desire to maintain essential services even when this requires sacrifices. . . .''

LEGISLATION—HOME RULE

Ohio.—Proposed legislation, legislation enacted, and administration of legislative acts relating to county home rule, continued to be important (see THE AMERICAN YEAR BOOK, 1933, p. 152). Ohio (see THE AMERICAN YEAR BOOK, 1931, p. 128, 1933, p. 152), in consequence of the county home rule amendment adopted last year, witnessed the election of county charter commissions (Nov. 6) in four counties; Cuyahoga (Cleveland), Hamilton (Cincinnati), Lucas (Toledo), and Mahoning (Youngstown), and the defeat of the charter commission proposed in four counties: Franklin (Columbus), Montgomery (Dayton), Stark (Canton), and Summit (Akron). The contribution of the four charter commissions entrusted with the reorganization of local government in counties in Ohio, which contain one-third of the population of the state, should have a marked influence upon county reorganization in urban territory throughout the nation. Fortunately the commissions contain trustworthy leaders including former Mayor Seasongood, Charles P. Taft 2nd of Cincinnati, and Harold H. Burton of Cleveland.

Texas.—The Texas county home rule amendment adopted 1933 (see THE AMERICAN YEAR BOOK, 1933, p. 152) gave rise to action in only one county, El Paso, where a charter submitted to the voters, May 12, was defeated. Other Texas counties, after witnessing the charter defeat in El Paso County, appear to have dropped, for the present, the charter reform movement.

Michigan.—Following the third refusal in five years of the Michigan legislature to submit a comprehensive constitutional amendment for county reorganization, a state committee on county reorganization was created for the purpose of placing an amendment on the November election ballot by constitutional initiative. The amendment was drafted by a committee of governmental experts including Professors Reed, Upson and Bromage, and the necessary signatures were secured. A vigorous campaign in its favor was carried on, but unfortunately it became identified in the campaign with four other amendments, the defeat of which seemed highly desirable. In consequence the county home rule amendment went down in defeat by a vote of approximately 422,000 *no*, to 333,000 *yes*. The amendment in all probability will be heard of again.

Its significant provisions are: (a) The legislature is authorized by general law to provide for alternative forms of county government, thus providing for an optional charter system similar to that in Montana, Nebraska. North Carolina, and Virginia; (b) the board of supervisors of a county, by a two-thirds vote, is authorized to submit to the electorate a plan of county organization; or petitioners equalling ten per cent of those voting for governor at the last election may initiate a plan of county organization.

California.—The county executive plan under the California home rule charter system (see THE AMERICAN YEAR BOOK, 1933, p. 152) completed the 18 months transition period, Dec. 31, 1934, and the county executive plan in its entirety goes into effect Jan. 1, 1935 in the two counties of San Mateo and Sacramento.

COUNTY CONSOLIDATION

Slight progress was made in the movement for consolidation of counties within a state. (see THE AMERICAN YEAR BOOK, 1933, pp. 152-3.) A constitutional amendment submitted to the voters of Texas Nov. 6, and defeated, provided that the legislature might, "by a two-thirds vote of both houses, create new counties and change county boundaries at will."

County consolidation in California is being sponsored by the Director of the Department of Finance in the state government, who advocates a "sound regional organization" as a substitute for counties, while the *San Francisco Examiner* advocates reducing the 58 counties to five.

The Public Administration Service, Chicago, published a pamphlet entitled *The Units of Government in the United States,* by Prof. Wm. Anderson, which proposes to reduce the number of local units to ten per cent of the present number. The principles underlying the reduction are: "(1) It s desirable to have only one single administrative unit in each defined area; (2) administrative efficiency should determine the size of counties with due consideration to topography, distance, and population density."

Vested interests, local pride, and "court-house rings" appear to be the chief factors delaying the movement for county consolidation.

COUNTY-CITY CONSOLIDATION

The most advanced step in county-city consolidation was taken in the four metropolitan counties in Ohio (mentioned above). [See THE AMERICAN YEAR BOOK, 1933, p. 153.] Two other instances may be reported, Duval County and Jacksonville, Fla., may be consolidated under a constitutional amendment adopted Nov. 6th. The legislature is authorized to provide the detailed legislation necessary which must be submitted for approval to the voters of the county and city. A long step toward the consolidation of the county and city of Milwaukee, Wis., was taken, Nov. 6th, by an overwhelming (three to one) vote of the electorate in Milwaukee county favoring the consolidation of their county and city. The referendum was advisory, only.

MANAGER AND EXECUTIVE PLAN

The county manager and county executive plan of government received one new recruit during the year. Douglas County, Nebraska, including the city of Omaha, adopted the manager form of county government at the Nov. 6th election by a vote of 42,496 to 30,315. It does not go into effect, however, until Jan. 1st, 1937.

The county manager plan was defeated by the voters of Santa Clara County, California, on Feb. 20. The county executive plan was defeated at an election in Hanover County, Virginia, Nov. 6.

Substantial economies, savings, and administrative improvements are reported for the third year under the manager system in Arlington County, Virginia, and from the nine months under the system in Albermarle and Henrico counties. (see *Nat. Munic. Rev.* Oct. 1934, pp. 508–511).

ADMINISTRATIVE REFORMS

The Kentucky legislature passed a mandatory county budget law. The New York legislature in the regular session enacted a measure permitting any county outside of New York City to draft a charter for its government. At a later special session a resolution (the Fearon resolution) was adopted (which must be re-adopted by the next legislature) providing for a constitutional amendment for the reorganization of county government and the abolition of unnecessary units.

Montana voters adopted (Nov. 6) a constitutional amendment giving county boards power to consolidate certain county offices. Florida voters empowered the legislature to classify counties and prescribe a uniform system of government for each. The Virginia assembly abolished the fee system for county treasurers and commissioners of revenue. Douglas and Sawyer Counties (Wis.) supplanted the large unwieldy boards by a small board of county commissioners. Arlington County, Va. installed a modern cost accounting system for all public works services of the county.

The increasing demand for governmental services and the decreasing ability to pay taxes have raised the long neglected reforms in local government organization and administration to a position of major interest awaiting the state legislatures which convene in January, 1935.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Legislators' Assn., 850 E. 58th St., Chicago, Ill.

Civil Service Forum, 985 Lenox Road, Brooklyn, New York City.

National Assn. for Constitutional Government, 716 Colorado Bldg., Washington, D. C.

National Civil Service Reform League, 519 Fifth Ave., New York City.

National Municipal League, 309 E. 34th St., New York City.

DIVISION V

MUNICIPAL GOVERNMENT

NEW YORK CITY AFFAIRS

By Rinehart J. Swenson

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ORGANIZATION OF THE FUSION GOVERNMENT

The anti-Tammany forces, under the leadership of Fiorello H. LaGuardia, the successful Republican-Fusion candidate for Mayor in the November, 1933, election, took over the administration of the affairs of the city on Jan. 1, 1934. With characteristic vigor Mayor LaGuardia set about the task of rebuilding a city government that was in sore need of repair. To this end he put the administrative departments in charge of a group of exceptionally capable non-partisan commissioners: Paul Blanshard, Commissioner of the Department of Investigation and Accounts; Austin H. MacCormick, Commissioner of Correction; John McKenzie, Commissioner of Docks; George J. Ryan, President of the Board of Education; John J. McElligott, Fire Commissioner; John L. Rice, Commissioner of Health; Sigismund S. Goldwater, Commissioner of Hospitals; Paul Windells, Corporation Counsel of the Law Department; Paul Moss, Commissioner of Licenses; Robert Moses, Commissioner of Parks; Frederick J. H. Kracke, Commissioner of Plant and Structures; John F. O'Ryan, Police Commissioner (resigned Sept. 24, succeeded by Lewis J. Valentine); William Fellowes Morgan, Jr., Commissioner of Public Markets, Weights and Measures; William Hodson, Commissioner of Public Welfare; Russell Forbes, Commissioner of Purchase; Thomas W. Hammond, Commissioner of Sanitation; Langdon W. Post, Commissioner of the Tenement House Department; and Maurice P. Davidson, Commissioner of the Department of Water Supply, Gas and Electricity. The Department of Finance is headed by an elective Comptroller. W. Arthur Cunningham, Fusionist, the successful candidate for this office died on May 5, 1934 and was succeeded by Joseph D. McGoldrick. At the regular November, 1934, election Frank J. Taylor, the Democratic candidate, was elected Comptroller for the unexpired term beginning Jan. 1, 1935.

FINANCIAL ADMINISTRATION

When the LaGuardia administration took office the finances of the city were in a chaotic condition. The city was facing a gross debt of over $2,500,000,000, a prospective deficit of approximately $30,000,000, with inadequate cash on hand to meet current expenses, and was unable to secure Federal funds until it could balance its budget. A number of factors contributed to this situation. Reckless extravagance in the spending of the city's funds was largely responsible. The cost of operating the city government increased from $380,000,000 to $697,000,000 or 83 per cent during the ten-year period from 1922–1932; while the population of the city increased only 23 per cent between 1920–1930; the assessed valuation of its real estate, the chief source of its revenue, dropped considerably during the last few years from $19,600,000 to $17,100,000 during the years 1932–1934, and delinquent taxes during the past two years increased enormously, amounting to more than one quarter of the total tax. As a further embarrassment to the new administration, the outgoing administration had entered into a four-year ''straight-jacket'' agreement with the banks, limiting taxes on real estate rigidly to approximately the 1933 level, and ear-marking $25,000,000 in the 1934 budget and $50,000,000 in the budgets of the next three years as a reserve for tax delinquencies, in return for which the banks agreed to set up a revolving fund to finance city expenditures and to loan $70,000,000 for relief purposes.

To meet this emergency the Mayor and his associates appealed to the state government for extraordinary powers. The legislature met on Jan. 3, 1934 and the greater part of the session, which ended on April 28, was given to wrangling over the Economy Bill of the city administration. As finally passed, this bill was divided into two parts, the second part (Chap. 443), relating to the educational system, was separately enacted so as to preserve the principle of state control of education. In order to effect savings and to increase the efficiency of the operation of the city government, the first part of the bill (Chap. 178) authorized the Board of Estimate and Apportionment, by resolution concurred in by members having not less than 12 votes, to transfer, consolidate, merge, or abolish any agency of the city, subject to appointment and removal by the Mayor, or any or all of the functions thereof; except that this authority did not apply to agencies created by the education, election, labor or public service laws, the Rapid Transit Act, or any law providing for the organization of the courts of the city, nor to county offices. The Board could require, by resolution concurred in by members having not less than ten votes, county office heads to make a ten per cent reduction in their budgets, but these officers were left free to effect this economy in their own way and without reducing their own salaries. But without a consolidation of city and county offices it is impossible to secure an effective reorganization of the administrative agencies within the city. Five separate county governments within the city are an anachronism and serve no useful purpose save in supplying sinecures for the party faithful. The Board was empowered further, by resolution concurred in by members having not less than ten votes, to fix the salaries of all city officers or employees, whose annual compensation exceeds $3,000 (no annual salary is to be reduced below $3,000), excepting those under the education and labor laws, employees of county offices, uniformed officers of the police and fire departments, officers and employees of designated courts, and any officer established by the constitution. Likewise it could grant payless furloughs for not exceeding one month, to any officer or employee whose compensation is paid in whole or in part out of the city treasury, and whose annual compensation exceeds $1,200, except that judicial officers of designated courts are not subject to this provision, and no furlough or reduction of compensation shall reduce the pension or retirement rights of any officer or employee. Furloughs are not to be deemed salary reductions. Provision was made for the proportionate refunding of salary losses through furloughs.

The economies thus permitted were too limited to balance the budget, and it became necessary to resort to new taxes. The city administration accordingly asked for an extension for one year of the special levy authorized for six months by the previous session (Chap. 815) and this authority was readily voted (Chap. 302).

Armed with these powers the city has taxed freely and not always wisely. Tax measures were approved as follows: On May 22, a tax of one-twentieth of one per cent on all gross receipts of general business and professions earned in New York City in 1933 in excess of $15,000, and one-tenth of one per cent of the gross receipts of financial business in excess of $15,000 (Local Law No. 9); on June 7, a tax of one and one-half per cent on the gross monthly income of utilities (Local Law No. 10); on Sept. 29, a city income tax to be imposed at the rate of 15 per cent on the amount of income tax that will accrue to the Federal Government for the year ended Dec. 31, 1934 (Local Law No. 18); and a tax of one-tenth of one per cent of the gross receipts of general business and professions in excess of $15,000 and one-fifth of one per cent of the gross receipts of financial business in excess of $5,000 (Local Law No. 17), to supersede Local Law No. 9 of May 22; on Dec. 5, a tax of three per cent upon the gross income of utilities (Local Law No. 21), to supersede Local Law No. 10 of June 7; a tax of two per cent on sales (Local Law No. 20), and an estate tax at the rate of 40 per cent of the amount of the tax imposed under provisions of the tax law of the State of New York (Local Law No. 22).

The estimated aggregate yield from the five taxes approved on Sept. 29 and Dec. 5 is $78,000,000. The city income tax is probably invalid, as not within the taxing authority of the city, and the sales tax is truly a nuisance tax which raises serious problems of administration.

On July 10, 1934, Mayor LaGuardia reported to the people that the budget was balanced, and the credit of the city restored. The bankers who had been getting 5¾ per cent on short term notes were induced to charge only one per cent; some $60,000,000 in serial bonds were sold between July 13 and Aug. 14 at less than 3.9 per cent, the lowest interest rate ever paid by the city, and $42,900,000 in serial bonds at an interest rate of 3.97 were sold on Dec. 18, 1934; the $50,000,000 reserve set up by the Bankers' Agreement was cut to $25,000,000 (a later agreement, requiring official ratification, reduces the amount to $16,000,000); a separate budget for relief was set up, the much condemned sales tax to be used for this purpose, and the pension funds were put upon a trust basis. These were some of the steps taken by the new administration to rebuild the shattered finances of the city.

CITY PURCHASING

The Department of Purchase, under the legislative act of 1933 creating a centralized purchasing system for the city of New York (Chap. 875) has centralized all buying for the city, with the exception of the supplies and materials bought by the Department of Education which is exempt under the act. In centralizing the buying activities of the city government, Commissioner Forbes has absorbed the scattered buying personnel of the several city departments into a central unit. The greater specialization in commodities and the consolidation of orders have resulted in substantial savings to the city.

Under the Director of Stores a centralized storehouse plan is being set up with perpetual inventory devices. This will prevent wastage through surplus accumulations and poor housing of perishable supplies, which was characteristic of the old system.

The Department of Purchase is also developing standard specifications for the 65,000 commodities purchased by the City of New York, and as an aid to this has established an exhaustive commodity inventory which promotes efficient buying and higher standards.

Perhaps the most striking accomplishment of the Department has been the breaking up of the 30-year monopoly of printing for the city government, through the development of standard specifications for printing services and a systematic attempt to procure open and free bidding.

In addition to buying all supplies and materials for the city departments, the Department has also acted as the buyer of relief supplies, a task equal in size and of greater complexity than the regular purchases of city supplies.

PARKS AND PLAYGROUNDS

The State Consolidation Act of Jan. 19, 1934 placed the park departments of the five boroughs under the jurisdiction of one commissioner, abolishing the five borough offices. The work formerly carried on by five commissioners and 17 assistants is now done by one commissioner, a secretary, and five assistants.

Under the zealous leadership of Commissioner Robert Moses, and with the liberal support of the taxpayer, the Park Department has rejuvenated the parks of the city. Unsightly structures have been painted; old fences torn down and 19 miles of new fence built; 38 miles of walks constructed; 11 miles of bridle path rebuilt and five and one-half miles added; 638 drinking fountains installed; comfort stations, stone walls, benches, trees, and so on, have been added in large numbers; seven new municipal golf clubs are being built and five old ones have been modernized; 34 new playgrounds have been constructed and the 65 old ones have been rehabilitated (the Leif Erickson playground and the Chrystie-Forsyth recreation park are the most conspicuous examples of new playgrounds); 5,000 acres of new park area have been added; Bryant Park has been rebuilt; important improvements have been made in Central (Manhattan), Prospect (Brooklyn), and Barrett (Staten Island) Parks. These are the outstanding accomplishments of a new and intelligent Park Department.

CITY HOUSING

The Tenement House Department has devoted its energies to two main accomplishments. The first of these is the improvement of administrative methods in the enforcement of the multiple dwelling laws. In the past, enforcement had been by correspondence with the owners, which resulted in no enforcement at all; during the present year the Department has been using, with success, its power to vacate buildings at the discretion of the Department and has found this a highly effective method of enforcing compliance with the safety and health standards set by law. Administrative improvement has also resulted from the abandonment of former emphasis upon borough organization, which resulted in varying standards of enforcement. Enforcement is now centered in a single deputy commissioner.

Second, acting in cooperation with the National Government and through the Municipal Housing Authority, a municipal corporation created by the 1934 legislature (Chap. 4), the Tenement House Commissioner is attempting to bring low-cost housing to the city of New York. On Oct. 12, the National Government exercised the first options on property for a housing development in the Williamsburgh area of Brooklyn. This housing project, which will eventually cover from eight to twelve blocks, cost between $8,000,000 and $12,000,000 and house between 5,000 and 8,000 people, is the first initiated in the United States by cooperation between the National Government and a municipal housing authority, and is the largest in the history of the city.

Supplementing this has been the initiation of a slum clearance project on the lower East Side in Manhattan; two blocks of Astor properties have been purchased by the Authority and will be reconditioned as a standard low-cost housing development. Considerable progress has also been made, with the consent of the owners, in the demolition of unsafe and uninhabitable buildings, by the Works Division of the Department of Public Welfare acting under the direction of the Housing Authority.

PUBLIC WELFARE WORK

The Department of Public Welfare, in addition to administering the City's normal relief is charged with the administration of emergency relief under the Emergency Relief Act of the State of New York (Chap. 798, Laws of 1931). Accordingly the Department has labored under the tremendous burden of caring for more than one-fourth of the population of the city, some 2,000,000 persons who are listed on the Department's relief rolls. Commissioner Hodson has estimated that approximately $201,000,000 will be spent by the Department during 1934 for all forms of relief in the city. One quarter of this is paid by the City (one-fourth is paid by the

State and one-half by the National Government), or approximately $50,000,000. In addition the Department has distributed among the needy a tremendous volume of food stuffs assigned to the city by the Federal Emergency Relief Administration. In the administration of emergency relief the Emergency Relief Bureau employs a staff of more than 12,000, most of whom are relief workers.

PENAL PROGRAM

The new Commissioner of the Department of Correction, Austin H. MacCormick, acted with becoming energy in setting to rights, during the first month of his tenure, the scandalous administration of the penitentiary on Welfare Island. Favorite prisoners had been given virtual control of the institution, and graft, degeneracy, drug addiction, and other corrupt practices flourished. The senior officers of the penitentiary were removed and trusted junior officers were put in charge. Discipline and good order have been restored. Coincident with this action, the Correction Hospital was established as the actual medical center of the Department, and the medical service has been improved. Some progress has been made in the work on the new penitentiary on Riker's Island in the face of many difficulties; an educational program has been inaugurated at the penitentiary, and a scientifically balanced ration of simple but wholesome food has been established.

CHARTER REVISION

After a long and bitter battle in the legislature a charter revision bill was passed, which became law on May 21, 1934, (Chap. 689). A Commission was named in the bill, and included a number of prominent citizens, with Alfred E. Smith as chairman and Samuel Seabury as vice-chairman. The Commission began its deliberations on May 25, 1934, but it soon became evident that the Commission as constituted could not frame a charter acceptable to the city or to the sponsors of the charter revision movement. Chairman Smith resigned Aug. 2, recommending the dissolution of the Commission and the creation of a new and smaller commission, appointed by the Mayor or by the Mayor and the Governor, to frame and submit a charter to the people at the general election in 1935. Log-rolling by the state legislature in naming the members of the Commission, and the insistence of a majority of the members on delay and on perpetuating the worst features of the present city government, were given as the chief causes for Chairman Smith's resignation. A bill unanimously passed by the legislature and signed by the Governor on Aug. 18 authorized the appointment by the Mayor of a new commission of nine members to draft a charter for submission to the city electorate (Chap. 867). The new commission has not been appointed and charter revision is still far in the future.

CITY POLITICS

By Clinton Rogers Woodruff

Director of Public Welfare, Philadelphia

DETROIT

Frank Couzens, the 31-year old son of Senator James Couzens of Michigan, became mayor of Detroit on Jan. 2, 1934. He is the youngest mayor that Detroit has ever inducted into office. He has been a close student of municipal affairs and has held several lesser city offices, so that he may be considered as a "career man" in municipal politics. Couzens had even had prior experience of the office of mayor. He was acting mayor in the spring of 1933 in his capacity as president of the City Commission following the resignation of Frank Murphy who had accepted appointment as Governor General of the Philippines. In the fall of 1933 Couzens resigned to become a candidate for mayor in his own right.

MILWAUKEE

Daniel W. Hoan, Socialist Mayor of Milwaukee, was first elected City Attorney when Milwaukee, tired of the Rose regíme, went Socialist and elected Emil Seidel as mayor. That was before the War. Hoan succeeded Seidel and has been continued in office ever since by a large non-Socialist vote. Hoan has, on the whole, made an excellent mayor. Under his administration the city has been singularly free from corruption and political jobbery. His administration has been on the whole forward-looking and economical. The Police, Fire and Health Departments have been ably and efficiently administered. Crime is negligible and most of the people are said to be happy. Nevertheless dissatisfaction over his budget and financial difficulties led to the filing of a petition for his recall, which was subsequently withdrawn. The law provides that such petition should contain a specific statement of the grounds upon which the removal is sought and must have a certain number of signatures. Before the election machinery is set in motion by the common council, the county judge must determine the sufficiency of such petition. During the examination by the county judge a considerable number of inaccuracies were disclosed, so those sponsoring the petition for the recall asked for permission to withdraw it, which was granted.

GRAND RAPIDS

An active campaign under the auspices of the Better Government League in Grand Rapids resulted in the election of four non-partisan members of the City Manager Commission, thus assuring a working majority of non-partisan city government on the city's seven-man commission.

SEATTLE

John Fairfax Dore, who was elected mayor of Seattle in 1932 when the city's credit was at low ebb and financial problems in general had become very difficult and who conducted a picturesque campaign on a program of drastic economy, again stood for election against Charles Lou Smith who once was a star quarterback at the University of Washington. Smith took his campaign cue from the church-going people of Seattle who complained of the city's vice and gambling. At the election the moral issue overshadowed the financial issue, and Smith was chosen mayor by a 4-to-3 vote. Mayor Dore's stunt campaign failed to make the desired impression on the voters. He caused handbills closely resembling dollar bills to be printed, which bore the likeness of President Roosevelt. In each corner the bills were marked ''One Vote'' and they carried this legend: ''Tax Levy 1931, $10,010,408.01, Tax Levy 1933, $5,289,983.87. Dollars for Bread instead of Dollars for Taxes.'' The telling figures could not overcome the antagonism roused by Mayor Dore's salary cuts and noisy campaign utterances.

TYPES OF MUNICIPAL GOVERNMENT

By Clinton Rogers Woodruff

Director of Public Welfare, Philadelphia

SURVEY OF GOVERNMENT UNITS

Scope.—A great deal of discussion in the last few years of depression has been devoted to the costliness and obsolescence of local government. There are 175,418 local units, according to a census made by the Public Administration Service, one of those private non-profit associations whose function it is to act as guide to the American people in the labyrinth of their governmental affairs. At the behest of the Service, whose headquarters are in Chicago, William Anderson, professor of political science at the University of Minnesota, and a staff of assistants undertook to count and classify the units of government of the United States, national, state and local. Two years were devoted to the task, a fair indication of its size and complexity. The findings are embodied in a report which not only lists figures and facts but supplies an interpretation of them by Professor Anderson together with his suggestions for a scheme of municipal organization better adapted to modern conditions and the taxpayer's pocketbook.

Government Classifications.—Professor Anderson's survey shows 3,053 counties, 16,366 incorporated places (cities, villages, etc., and the District of Columbia), 20,262 towns and townships, 127,108 school districts, and 8,580 other units (fire, water, lighting, sewer, sidewalk, park, and other districts of the sort). Each one of these units, to be eligible for his list, has its own separate continuing governmental organization independent of other local governments; it has the power year after year to provide some governmental service on its own responsibility, and the power to raise revenue by taxation, or by special assessment, or by fixing rates for service rendered.

''No citizen of the State of New York,'' according to the President, ''can live under less than four governments—Federal, state, county and city. If he lives in a town outside of a village, he is under five layers of government—Federal, state, county, town and school. If he lives in an incorporated village, another layer is added. If he lives in a town outside of a village, he may be in a fire, water, sewer, lighting, and sidewalk district, in which case there are ten layers of government.''

Situation in New York State. — New York is one of the worst states in respect to the complication and overlapping of its local jurisdictions. Illinois leads the list with 12,186 autonomous school districts, and with 2,439 other districts, including water-control districts, rural road and bridge districts, urban improvement districts and urban utility districts. Much simpler in their local organization, though still far from ideal, are the county-unit states stretching from Virginia to Florida, and the town-unit states which comprise mainly the New England group. It is from New York west that one finds for the most part the so-called district system and the correspondingly large numbers of units. In this area ''there are thousands of school districts, with separate boards and corporate authority, that provide schools for not more than a dozen children each year.'' As for special districts, their variety stuns the imagination. ''Thus one state has irrigation, conservancy, drainage, flood-control, flood-protection, levee, county irrigation, county sanitation, sanitary, county water, metropolitan water, municipal water, storm-water, water-conservation and water - storage districts, among others.'' The functions performed by these myriad units are, with very few exceptions, essential to the welfare of their respective communities and to the maintenance of the American standard of living. It is not what they do but the economy of their performance that constitutes the real issue before the country.

Suggested Reforms. — Professor Anderson would cut their number from 175,418 to 17,850, or by nine-tenths. He would have no separate school districts in the country whatsoever. The local schools should be administered, he believes by the several counties, cities, larger towns and larger villages, under state supervision. He would abolish also practically all other special districts, dividing their functions among city, town, county and village governments. In most of the Middle Western and several Middle Atlantic States he would wipe out all townships as governing units and transfer their main functions to the county in each case. The

New England town system he would leave intact except for "a great deal of consolidation among the least populous and more rural towns." For the rest of the country, "in rural areas, and in areas partly urban and partly rural," he would make the county "the main unit for performing services of state-wide import, including education, and also for providing the rural local services," but he would considerably reduce the number of counties. His program is the first comprehensive one of the kind to be presented to the country, and is based on facts.

CHARTER REVISION IN NEW YORK CITY

Eighteen members of New York University's faculty submitted to Mayor LaGuardia a comprehensive plan for the revision of the city's charter. Distinguished among their many recommendations have been some already put forth by Judge Seabury, former Governor Alfred E. Smith and others, notably preferential voting, greater concentration of responsibility, consolidation of agencies and a unicameral legislature. The authors oppose state regulation of local public utilities. They would give the city exclusive jurisdiction in this field and the right to "institute municipal ownership and operation" when this suited its purpose. They would enlarge its taxing powers. Among the new taxes suggested are "privilege taxes" for the use of public highways, and excise taxes on "all rents in excess of a given amount" and on "all consumption of gas and electricity in excess of a given amount." They believe that the plan will save the city $50,000,000.

CITY MANAGEMENT AS A PROFESSION

Strides in making the managing of cities a profession are seen from a survey of men now performing this service which appears in a book, *The City Manager Profession,* by Clarence E. Ridley and Orin F. Nolting, published in June by the University of Chicago. Three-fourths of the 629 city managers who have been in office during a part or all of the last three years had previously held governmental positions. Over half of these managers came directly from public positions. Nearly three-fourths of the 69 cities which made the manager plan effective during the years 1930-33 have appointed out-of-town men as their first managers. These are generally men with previous manager experience.

Rise of the profession of city manager is an expression on the part of the people that certain technical functions of local government must be administered by specially trained technicians, the book points out. "The majority of city managers by their everyday actions have indicated high standards of professional conduct. Further development of individual and group standards will make for a group of highly qualified men whose professional standing the public cannot possibly fail to recognize and appreciate."

STORY OF THE CITY MANAGER PLAN

The National Municipal League has published a pocket-size pamphlet of 48 pages, telling "The Story of the City Manager Plan," revised September, 1934. What the plan is and how it works are explained, and its effectiveness is attested by accounts of results in cities where the evidence is overwhelming. Charts show the organization of the old mayor-council form and the commission form, and of the city manager plan as paralleling the corporate organization of modern business. A list of the 376 cities which have the plan by charter is given.

MUNICIPAL FUNCTIONS

BY CLINTON ROGERS WOODRUFF
DIRECTOR OF PUBLIC WELFARE, PHILADELPHIA

FEDERAL MUNICIPAL ADJUSTMENT ACT

The long upward curve of mounting local taxes was halted in 1932. There was a decided drop for that year and the indications are that the assessment upon them for 1934-1935 will be less. As the storm of depression hit the country, there was a compelling need for retrenchment and elimination of all waste; every municipal administration has had to face the problem of reducing governmental costs. Generally speaking, the problem has been met courageously. In spite of this retrenchment, however, some municipalities have not been able to keep step with this unprecedented period of deflation. Many are in default on their obligations and many more have slipped close to the thin edge of temporary insolvency. Intelligent and friendly cooperation between officials and creditors became necessary.

It has been possible time and time again to evolve a plan of adjustment which is satisfactory to the city and a majority of its creditors. Usually, all that is necessary is a judicious refunding of debt. If the plan could be promptly consummated, it would be the means of a rapid improvement in financial stability. Unfortunately a plan may be blocked by a few creditors. In fact, one creditor may successfully oppose it. Under the present laws it is necessary to prevail upon 100 per cent to effect a successful refunding plan. So far, a great majority of investors in municipal bonds have shown a sympathetic interest in the financial condition of municipalities and have readily accepted new securities where there was an apparent evidence of good faith and actual ability to pay in due time. In virtually every instance, however, the city finds that a small percentage of bond owners "holds out" for payment in full. Some of these may be trustees whose technical legal position does not permit them to take less than 100 cents on the dollar with no postponement, even though, acting for their own personal account, they would do so.

It is not practical to operate under the present system which requires 100 per cent approval. It causes embarrassment to the municipality and jeopardizes the best interests of the large majority of its creditors. It was for this reason that Congress was asked for corrective legislation in the form of the Sumners-Willcox Bill. It passed the House on June 9, 1933, and, as the Fletcher Bill (S. 1865), was considered at the regular session of the Senate beginning in January, 1934 and finally passed. The purpose of this bill is to give the Federal court the right to compel the small minority to accept the same treatment which the majority has agreed upon and which is believed best for both the municipality and its bondholders. It is designed to correct outstanding defaults and to prevent an anticipated default.

Unfortunately, according to E. F. Dunstan, of the Municipal Securities Investment Bankers Association of America, the Sumners Bill has been erroneously called a bankruptcy bill by reason of its being offered as an amendment to the Federal Bankruptcy Act. A city cannot become a bankrupt under its provisions, discharge itself of all its obligations and start again without debt. It does not necessarily mean that the creditors will be compelled to compromise their claims or sustain any loss. On the other hand, there is no compulsion on the part of the municipality to act under the provisions of the bill. If the municipality comes into court with its creditors, it does so voluntarily. The bill provides a forum, the Federal court, where the creditors and debtors with competent legal counsel may meet to adjust their differences.

The mere declaration by a municipality of its inability to pay is not in itself sufficient warrant for the initiation of court proceedings. The opinion of creditors as to the city's inability to pay must be established to the court's satisfaction before it authorizes the proposed proceedings. To this end provision is made for the approval in writing of those owning not less than 30 per cent of the debt outstanding before the court will hear a municipality's petition. This percentage is deemed a barrier sufficiently high to discourage dishonest administrators from attempting to utilize the new court machinery for the purpose of evading their just responsibilities.

The plan is presented to the court with the approval of the municipality and the 30 per cent of its creditors. The court must then satisfy itself that it is fair, equitable, does not discriminate in favor of any class of creditors, is based upon reasonable capacity to pay, and is feasible. It may not be confirmed by the court until accepted in writing by creditors holding two-thirds in amount of claims in each class and three-fourths in amount of all claims affected. The legislation is designed to give relief and protection to both creditors and taxpayers of a taxing unit by an equitable composition of its entire debt if necessary, or of any single class of debt, such as temporary notes, improvement bonds, etc., or by a simple refunding operation. It does not presuppose scaling of principal or interest. It is designed for the orderly handling of municipal debts and defeat of selfish minorities. The proposed legislation is regarded as sound in theory as it was conceived by those having actual experience with the problems of municipal defaults. It was endorsed by those schooled in the preservation of municipal credits and who have always and still do represent creditors. The Act is known as the Federal Municipal Adjustment Act.

SURVEY OF CITY FINANCIAL AFFAIRS

It has become generally accepted that municipal finances are in a stronger position than they have been in recent years. Interest rates are lower, many outstanding issues are selling at higher prices, debt is being reduced, salaries are being paid and in some cases cuts are being restored, and some municipalities have withdrawn applications for PWA loans in the belief they can do better in the private market. In a recent survey by The Associated Press, ''the brightest outlook for city financial affairs in the last few years'' was reported. The same report presents the following conditions obtaining in leading cities:

Chicago is offering $10,000,000 of refunding bonds to pay 4 per cent until Jan. 1, 1935, and 4½ per cent thereafter until 1954, in exchange for 4 per cent bonds maturing Jan. 1, 1935. In addition, the city has $2,249,900 in the sinking-fund for retirement purposes.

Boston reports delinquent taxes $11,344,000, against $306,000 in 1931; but interest rates are 3.75, from 4.75 last year, and interest on temporary loans is the lowest in 25 years. Worcester sold 2½ per cent bonds at a cost of 1.87, the lowest rate in its history.

Rochester tax returns made possible the retirement of $2,308,000 bonds, and the debt is $50,000,000 instead of $61,000,000 as of 1932. Syracuse tax collections are as good as a year ago; rate on last bond issue, 3 per cent; all payrolls met. Buffalo bond sale of $8,000,000 at less than 4 per cent; tax collections good. Albany bond sale at lowest rate ever recorded.

Cleveland is financed for 1934. Cincinnati is on a cash basis. Milwaukee has a cash balance of $3,849,000, compared with $1,320,000 a year ago. Cincinnati has restored salary cuts made two years ago.

Atlanta had a deficit of $812,618 in 1931, which increased in 1932 and 1933, but not this year. Louisville's financial condition best in three years, with $1,000,000 more collections than last year. Indianapolis debt lower than in last two years; temporary loans at 2 per cent.

San Francisco tax rate 3.48 compared with 3.96 in 1933; city on cash basis; salaries paid, and no outstanding indebtedness; interest rate 3.15 against 5 per cent two years ago; best condition in ten years. Los Angeles rate lowest in more than ten years.

Cheyenne, with 17,000 population, reports this year better than either 1932 or 1933, although those were satisfactory years. Lincoln's bonded debt is $4,141,000, against $3,103,000 in 1931; but a $126,000 building and a $1,800,000 water system have been constructed since then.

In Texas, Austin is on a cash basis as usual; San Antonio expects a tax reduction of 15 to 25 per cent this year; Houston, best in five years, and pays 4 per cent against 4½ in 1932; Dallas within income since 1931 and has retired part of a $2,000,000 overdraft built up from 1929-31; Fort Worth, since 1931, has overcome a cash overdraft of $544,426 in operating fund and now has a cash balance of $37,292.

IMPROVEMENT IN FINANCIAL CONDITIONS

A material improvement in the financial condition of many state and local governmental units was reported by the Municipal Securities Committee of the Investment Bankers Association of America, on Oct. 30, 1934, at the Association's annual convention at White Sulphur Springs, W. Va. ''In general,'' said the report, ''the trend of tax collections has become favorable, available statistics indicating that both current and delinquent taxes are being paid more readily. Temporary indebtedness of many of our cities has been lowered and in some instances funded debt likewise has decreased, while taxpayers have found some relief in curtailed costs of operation. The amount of state and city obligations in default has been reduced rapidly. Such encouraging factors are offset in part by the uncertainties of general business and by demands for unsound local legislation, but in an extensive survey it appears that favorable items predominate and the market steadily has reflected the increasing optimism . . .''

COLLEGE COURSES FOR THE POLICE

During the past several years advances have been made in police training which will undoubtedly have influence upon the police of the future. Courses in police organization and administration have been established at the University of Chicago; courses in scientific investigation are offered at Northwestern University; the University of Hawaii has a fully-trained program for policemen, and it is the intention of the Police Commission of Honolulu to recruit their force from the men who are trained at the University. The junior colleges of San José and Los Angeles offer two years of training to prospective policemen, and the University of California is now offering courses in police organization and administration. The Universities of Ohio, Michigan, and one or two others, have offered short courses for policemen, and a number of the universities, including the Universities of Iowa, Wyoming and Indiana, are now making inquiries concerning training programs for policemen.

The most important administrative advances have been made in the matter of police records, all of which are now centralized in the Division of Investigation of the Department of Justice. This includes fingerprint records as well as statistical information regarding the character and number of crimes that are committed. While it is true that these records are incomplete and have questionable statistical value, at the present time, the trend toward better records is unmistakable, and for the first time in the history of America we are beginning to get information concerning the extent of crimes in the various cities and states.

POLICE FUNCTIONS AND PERFORMANCE

Better Tactics.—In view of the hectic and turbulent conditions of the times little can be said on the side of police administration but much has happened in the development of tactics. European police in Austria and Germany have presented some remarkable examples of the manner in which a militarized police follows the flag of the existing government and acts in defense of that government. Our American police have disclosed in a number of demonstrations, particularly on the Pacific Coast, an advance in tactics in the control of mobs with their tear gas and the control of highways for the safe transport of food supplies, etc. through coordinated action of state police, municipal police and county peace officers. In this respect San Francisco police, the California State Motor Police and the Sheriffs of California; also the Portland, Oregon, police, the Oregon State Police and the Sheriffs of Oregon have put on a fine show this year.

Policing Efficiency. — Cities are taking steps to improve their policing efficiency in a variety of ways. Grand Rapids, Mich., educates the public in traffic accident causes through an accident investigation board, consisting of two ranking police officers and an assistant city attorney, which hears testimony of the participants in the accident, acted out with toy motor cars. This Police Department finds that such a procedure eliminates much of the confusion, uncertainty and long-drawn-out lawsuits that often result from accidents. Cambridge, Mass., had a survey made of its Police Department. It revealed that police beats laid out fifty years ago, when the city was half its present size, have never been rearranged. Modernizing city police coverage with auto patrol for the most part, limiting intensive foot patrol to crime areas, would make it possible to reduce the police force from 235 to 194 men. The financial saving is calculated at $101,580—nearly one-fifth of present salary costs. The Mayor says he is convinced that the Department should be modernized.

Fingerprinting, for purposes other than criminal catching, is gaining in popularity. West Virginia's State Identification Bureau now accepts voluntary filing of fingerprints by residents of the state, allowing parents to register their children's prints. The announced purpose is to give identification in case of injuries, loss of memory, change of appearance, etc. Difficulty in identifying victims of mine disasters has given chief emphasis to this new program. Oskaloosa, Ia., has recently instituted the practice of recording the prints of every man, woman and child within the town's corporate limits.

Police Radio.—Exposing criminals to justice by air is gaining, according to a survey made by the American Municipal Association, showing the wide use of police radio. Seventy city police departments, comparing pre- and post-radio installation days, report an increase of from 25 to 50 per cent in the number of arrests made since they took to the air and 26 of the 70 cities installed their sets within the past year. Detroit first operated its system successfully in 1928 and holds the oldest place in this field. Aberdeen, Wash., and Las Vegas, N. M., have come in recently. Most of the cities say there has been no reduction of police costs since they put in radios, but that police efficiency has more than doubled. A number of cities, however, which eliminated some of their patrolmen when radio was installed, report considerable savings, one city considering the radio equal to 100 additional policemen whose services would cost about $200,000 a year. The two-way radio, which allows mutual communication between police cars and headquarters is the next step forward, it is indicated. Although no large number of police departments have installed two-way radios, most of them say they are considering doing so, as soon as the radios are perfected to a greater degree. The advantages of two-way radios include: (1) increased speed, due to saving of time in eliminating repetition of calls from headquarters; (2) less need for police boxes for reporting back; (3) increased secrecy; (4) intercommunication among police cars; (5) chance to call for help without leaving cars; (6) allowing superior officers in the field to direct police cars; (7) closer contact with headquarters. Aside from several complete state police radio communication systems, at least 55 municipal systems serve surrounding territory also, the report shows. St. Louis' radio range amounts to approximately 472 square miles. Buffalo's territory is 1,034 square miles. Berkeley, Calif., serves 1,446 square miles.

INTERNATIONAL WORLD POLICE

Unknown to the public at large, the International World Police has come into existence, and is already functioning. It is not, in itself, a police force, and it has no police powers, but it marks a significant step forward in tracking down the international criminal, for its purpose is to exchange crime data, facilitate extradition, improve police methods, and act as a general service bureau for police officials in all civilized countries. The Western offices are at New York City's police headquarters; the Eastern offices will be located in Vienna. Maj-Gen. John F. O'Ryan, of New York City is President. Vice presidents are high police officials of Rome, Paris, Brussels, Warsaw, Amsterdam, Montreal, London and Commissioner of Police James P. Allman of Chicago. The Secretary is New York's Deputy Chief Inspector John J. O'Connell, known as the ''professor'' because he is in charge of the city's police college.

FIRE PREVENTION AND PROTECTION

Insurance Rates.—The Committee on City Planning and Zoning of the National Fire Protection Association holds that the same factors which fire-protection engineers must consider in the planning of fire protection of the city, are factors in determining the insurance rates of the city. They are measured by a definite schedule in which credit points are given for features favorable to fire prevention and protection, and penalty points assessed for conditions unfavorable to such prevention and protection. Insurance rates on individual buildings are also affected by factors which can be controlled by planning and zoning provisions. Increased rates result from the crowding of buildings because of charges in rating schedules for exposure hazards. Tangible results in the form of reduced fire insurance premiums follow certain features of a master plan which affect the local fire situation.

Department Records. — The National Fire Prevention Association states that adequate fire-department records should be the basis for all fire prevention activities. Important records and reports include the following: Fire reports on the fire made out by the officer in charge and sent to headquarters, giving location, time, cause, extent, loss. The form should be convenient for filing, and the essential data should be entered chronologically in a journal or log. Building and inspection records of every building except dwellings, showing hazards, sketches of sprinkler systems; data on previous fires, as date, cause, loss, location of fire, a complete fire history of the building. Personal record giving the history and standing of each member, grade, promotions, assignments, charges. There should also be an envelope containing his papers of character and conduct. Consolidated monthly reports give trends of fire losses, causes, and department activities. This is a summary of alarms, cases, losses, inspections, hazards found, work of each company, methods employed to put out the fires. This report should go to mayor, city manager, chamber of commerce and safety councils, to provide the basis for fire-prevention programs.

EMPLOYMENT RELIEF

At its annual convention held in Chicago on Nov. 24, 1934, the United States Conference of Mayors urged national responsibility for all employables and local care of incapables, and adopted resolutions advocating a long-time program of public works and relief sufficient to meet the unemployment problem. ''We are prepared'' the resolutions state ''to submit to Congress and invite the scrutiny of financial experts of a plan whereby funds can be advanced to municipalities for public works according to accepted and sound practices at a rate of not exceeding ⅛ of one per cent without in the slightest disturbing either the credit of the Federal Government or the municipalities.'' In recognition of the urgent need for an immediate work relief program, the resolutions also stated that ''the real purpose of an immediate work relief program will fail unless there is adequate provision for materials cost as well as labor cost'' and that ''we further recommend that where possible there should be effected closer cooperation with regard to selection and administration of work projects between the *municipal governments and the relief authorities.''*

Questions of importance to cities, relative to state and Federal problems as well as to those within the confines of the municipalities, were discussed at the three-day meeting of the American Municipal Association in Chicago, Oct. 26-28, when representatives of leagues of 30 states met. Henry W. Hunt, General Counsel of the Public Works Administration, Washington, who spent part of his time answering the many specific questions the League heads had to put about public works fund applications, told the conference that long-range planning of public works is contemplated as a permanent purpose of the PWA. ''Projects such as Muscle Shoals and Boulder Dam, now in progress,'' he said, ''are but an indication of what can be done along the line of public works. These publicly owned projects mean an end to the exploitation of material resources for private profit which has been going on for a long time.'' Mr. Hunt expressed approval of the plan of the American Municipal Association to aid cities applying for public works money by making available a corps of expert advisors throughout the country.

BILLBOARD ADVERTISING

In October the Outdoor Advertising Association of America held its 44th annual convention in Chicago. The billboard men praised their new Traffic Audit Bureau, which does much the same job that the Audit Bureau of Circulation does for publications, and they voted unanimously to retain a ruling laid down in 1915—no hard liquor advertising on poster panels. As before, however, members may accept such advertising for painted boards, and beer will still be acceptable on both kinds. Involving a sacrifice of perhaps $2,000,000 a year, the action on poster panels was inspired by no moral considerations but, according to *Time,* by the fact that: (1) a large number of the 75,000,000 U. S. citizens who are supposed to read billboard advertising regard hard liquor advertising in church and school communities as something less than a mixed blessing; (2) many a big advertiser would be profoundly shocked to see his posters hard by one for Golden Wedding rye; (3) poster space is sold in ''showings'' or fixed units. A ''showing'' is so many billboards in a city area. The buyer may buy a showing in one community or 17,000 showings in 17,000 communities; or one-half or one-quarter showings. In every case the rate is the same—$7.80 per month for each regular billboard, $35, per month for each illuminated. Before the depression the volume of outdoor advertising in the United States ran about $75,000,000 annually. This year it footed up to some $38,000,000, of which $30,000,000 is national advertising. There are still over 200,000 billboards.

MUNICIPAL MISCELLANIES

BY CLINTON ROGERS WOODRUFF

DIRECTOR OF PUBLIC WELFARE, PHILADELPHIA

POPULATION FACTORS

Slower population growth, with indication that population may become stationary within the next two or three decades, will have an important effect on municipal activities in the future, according to *Public Management*, the journal of the International City Managers' Association. By the U. S. census count, the birth rate in this country has declined more than one-third since 1915. If the present trend continues, it is estimated, the population will become stationary within 20 or 30 years at somewhere between 135,000,000 and 145,000,000. The birth rate is lowest in the cities, the census shows. The largest cities now have birth rates about 25 per cent below the maintenance level, and in cities under 100,000, the deficit is 10 to 15 per cent.

Students of the problem forecast the following changes of emphasis on municipal functions as among probable results. The present constantly increasing intensity of land use for business and residence will stop, which will mean a slower recovery from the present slump in urban land values, and adverse effects upon the building industry, unless communities undertake slum clearance or other public building programs. City plans based upon anticipated large future growth will have to be revised in many cases.

It will be necessary to set up other signs than growth in numbers as a measure of municipal achievement. There will be an easing of the problem of providing the physical equipment of schools in the cities, since there will be fewer children as students. The large percentage of older people, however, will make it necessary for cities to pay more attention to public health and accident prevention, and to make provision for more cultural and recreational activities for adults.

HAND BILL REGULATION

The United States Supreme Court has refused to review a decision of lower courts sustaining a south San Francisco ordinance prohibiting promiscuous distribution of hand bills or any printed or written advertising matter (newspapers excepted). Nearly all recent court decisions have upheld the right of cities to do their own regulating. Los Angeles city council is now considering an ordinance which will prohibit hand bill distributors from placing the bills on properties where householder has posted a "No Advertising" sign. An ordinance prohibiting distribution of handbills and advertising matter on porches and in yards, etc., was upheld by the United States Circuit Court of Appeals.

LIQUOR PROFITS IN VIRGINIA

Virginia cities are to have a new source of revenue if the state continues to pile up profits at the present rate. The Liquor Control Act gives them two-thirds of the profits above $1,675,000 per year after deducting sums for creating a surplus up to $1,000,000. Profits from the liquor stores have upset all previous estimates and have confounded, as well estimates of the members of the ABC Board themselves who, at the outset of the state's experiment, said they feared no profits at all would result during the first year of operation.

MUNICIPAL ACCOUNTING

A significant movement for the improvement of municipal accounting took place in Chicago on Oct. 28 when seven national organizations interested in that subject were called together by the Public Administration Clearing House to consider methods of cooperation. As a result of the meeting a joint committee will be formed of representatives of each of the groups to work with a full-time staff to be provided by the Municipal Finance Officers' Association. The work to be carried on will deal with the questions of terminology, classification of accounts, forms of reports for various purposes, basic material for uniform statistics, specifications for audits and related subjects. An important part of the committee's work will be the promotion of interest and the acceptance of principles and standards that it may adopt. It also wishes to secure revision of the forms of financial statistics assembled by public bodies, in order to bring them into harmony with the classification eventually adopted by the committee. The organizations represented were the American Society of Certified Public Accountants, American Institute of Accountants, National Association of Cost Accountants, American Association of University Instructors in Accounting, American Municipal Association, National Association of State Auditors, Comptrollers and Treasurers, Municipal Finance Officers' Association. The International City Managers' Association and the Bureau of the Census were invited to participate in the work of the committee.

TENNESSEE CITIES IN GASOLINE BUSINESS

To get a more moderate rate on their gasoline, several Tennessee cities have gone into the gasoline business themselves. The Mayor of Chattanooga has undertaken a study of the local gasoline situation, to determine the feasibility of the city's opening a filling station as a means of combating high prices. Gasoline was 8 cents higher a gallon in Chattanooga than in Nashville and Memphis, when the Mayor instituted the study. Athens, Trenton, Kingston, Harriman and Cookeville are among other Tennessee cities reported as engaging in the business of selling gasoline to the general public. Trenton closed its municipal gas station when prices were reduced, and will reopen it if prices increase. The cities indicate that they do not want to go into the commercial gasoline business in competition with the big oil companies; but they point out that when they can buy gasoline and sell it at a profit and at a much lower price than the other stations are charging, they feel they have a right to do it.

CITY, METROPOLITAN AND REGIONAL PLANNING

By Charles W. Eliot 2d

Executive Officer, National Resources Board

GENERAL

Largely because of the stimulation and assistance provided by the Federal Government, regional planning activities have been greatly extended and intensified during the last year. The definition of regional planning which started out as extension of the principles of city planning to metropolitan areas has now grown territorially to cover rural districts, states, and the whole United States. At the same time broader interpretation of the term to include social, economic, and governmental problems as well as "physical" planning has been generally adopted.

NATIONAL RESOURCES BOARD

A proposal for a continuing national planning agency was presented to the President in June by the National Planning Board of the Public Works Administration in a report which was based on an extended study of planning agencies of Federal, state and local authorities. The work of the National Planning Board was then continued by the National Resources Board appointed by the President on July 1, 1934.

During the last six months of the year, at the request of the President, a great inventory of natural resources of the country was taken by the National Resources Board made up from a combination of the previous National Planning Board and the Committee on Land Problems. For the first time in our national history a coordinated study of land, water and mineral assets of the country was attempted and the foresight of the various planning agencies of the Government drawn together in a common effort to lay down general policies for their wise use, conservation and development. The report of the National Resources Board submitted to the President on Dec. 1, provides a basic framework of the national policy into which further plans by Federal and state agencies can be fitted so as continuously to guide public works programs and the conservation and utilization of land, water and mineral resources.

INTERSTATE PLANNING

The great Federal effort in the Tennessee Valley provides the outstanding example of planning for an interstate region, and great progress has been made during the last year in assembling basic data and in organizing the material for the planned development of the whole Valley.

Two new interstate planning organizations have been created during the last year in the Pacific Northwest and in New England. In both of these cases a central planning organization has been set up, composed of the chairmen of the State Planning Boards within the area and under the leadership of a district chairman appointed by the National Resources Board.

There are now, therefore, at least three interstate planning laboratories in widely separated parts of the country and set up on quite different theories, but all three making extraordinary progress in the preparation of regional plans.

STATE PLANNING

Since the suggestion by the National Planning Board in September 1933, calling attention to the desirability of State Planning Boards, 42 Governors have appointed State Planning agencies. Instead of receiving possibly four or five State Planning reports in a year's time, as at first anticipated, the National Resources Board has now received from 25 State Planning Boards preliminary reports of progress on their first six months of work, and eight states have established planning agencies through legislation. All of the State Planning Boards have been working on public works programs, studies of land use, transportation, and water resources. Though the new Boards are at the most only a year old, they are already assuming large responsibilities in coordination of state development policies. The National Resources Board has been helping qualified State Planning agencies through assignment of consultants, and the Federal Emergency Relief Administration has assisted notably by making relief workers available for stenographic, statistical and drafting services.

COUNTY PLANNING

One of the most interesting developments in the interstate region of the Pacific Northwest has been the growth of county planning organizations through the stimulation supplied by the regional office in Portland where nearly 100 new county planning agencies have been set up during the last year.

In Wisconsin great forward steps have been taken through county zoning on a basis somewhat different from that practised in California and giving practical demonstration of the possibilities of this democratic method of control over rural land uses and development.

In the counties around New York City, through a series of work relief planning projects, new planning organizations have been built up to cooperate with the New York Regional Plan Association.

METROPOLITAN AND CITY PLANNING

A regional and metropolitan planning study involving the Federal Government, two states and several counties and municipalities around St. Louis was inaugurated during the year with assignment to the work of consultants from the National Planning Board.

City planning agencies generally have suffered seriously during the depression from lack of funds and other support, but during the last year were given a new lease on life through availability of assistance from the Civil Works Administration and the Federal Emergency Relief Administration. Through the efforts of the National Planning Board a general check-up of studies of city planning work was made during the spring of 1934, which showed 739 city planning boards in existence, of which 717 were official. Among these planning agencies, survey and other work relief, projects were developed which employed more than 10,000 people. These items of progress and activity indicate the vigor and health of the regional planning movement.

GEORGE WASHINGTON MEMORIAL PARKWAY

Both the National Capital Park and Planning Commission and the American Civic Association have advocated a development along the banks of the Potomac River to be known as the George Washington Memorial Parkway. This Parkway will secure official control of both sides of the Potomac River from Mt. Vernon to Great Falls on the Virginia side and between Fort Washington and Great Falls on the Maryland side. About one-quarter of the project was completed by the recent opening of the Mt. Vernon Memorial Highway. The depression has caused a temporary set-back to the work on the Highway.

Frederic A. Delano, Chairman of the National Capital Park and Planning Commission and President of the American Civic Association has had manufactured a Handkerchief Map of Washington and the surrounding country. The net proceeds from the sale of the Handkerchief Map will go to the George Washington Memorial fund.

ZONING

By H. M. Olmsted

Public Utility Consultant

LEGAL STATUS

With approval by the Texas Supreme Court of a comprehensive zoning ordinance enacted by the City of Dallas under state law, Texas fell into line with some 40 other states where similar ordinances have been sustained, and the principle of zoning, whereby the use of land can be regulated by public authority, has thus been given effective legal status.

Earlier zoning ordinances of Dallas, which attempted in a piecemeal way and without specific legislative authority, to restrict the uses of land in certain districts, had been declared invalid. Later the state legislature by statute authorized cities to zone, and Dallas adopted a new ordinance, zoning the entire city. This finally reached the State Supreme Court in the case of Lombardo *v.* City of Dallas, and was recently sustained, the court thus following the lead of most other American courts, including the United States Supreme Court, in upholding the right of cities, when reasonably exercised under proper statutes, to establish zones restricted to certain uses and, frequently, as to various related considerations, such as height and bulk of buildings, and density of population.

THE DALLAS ORDINANCE

The characteristics of the Dallas ordinance, which was thus sustained, in contrast with the old and invalid ordinances, well illustrate certain important features of a proper and valid ordinance. They were described by Hugh S. Grady of Dallas in an article in *Texas Municipalities* for July, 1934, as follows:

"This comprehensive zoning ordinance is not, like the old ordinances, based upon the theory of consent by the property owners. It was adopted after notice and a hearing before a zoning commission and notice and hearing before the governing body, thereby affording every property owner in the city ample opportunity to appear and be heard. The old ordinances were adopted without notice or hearing to the property owners. They failed to provide a remedy by which a property owner could protect himself against arbitrary and unwarranted action, whereas the present ordinance affords an appeal from the finding of the administrative officers to a board of adjustment, and the enabling act provides for a court review upon application for a writ of certiorari. The old ordinances did not provide a means of changing zoning classifications by amendment, whereas the present ordinance provides a specific method to accomplish this result. The old ordinances provided no safeguards against unnecessary harshness or unfairness. The present ordinance authorizes appropriate adjustments and makes the operation of the law flexible.

"Both the legislative enabling act and the ordinance involved in the two cases herein mentioned were modeled after the uniform Zoning Enabling Act and ordinance prepared by a committee on zoning appointed by the United States Secretary of Commerce and are practically the same in their general terms and provisions as those which have been sustained throughout the country."

APPLICATION OF ZONING PRINCIPLES

The economic depression of recent years has emphasized certain mistakes in the practical application of the principle of zoning, particularly in the existence of too generous provisions for business uses and other intensive types of development. Caution, in the form of deference to judicial conservatism and to widespread notions about present and prospective land values, had caused such undue generosity, when drastic restrictions would have been more desirable as it turned out. A study recently made in New York City reveals an amazing, though extreme, situation there. As pointed out by Frederick L. Ackerman, Technical Director of the New York City Housing Authority, in *The American City* for October, 1934: "This shows that if New York City were to be built up to the full density permitted under the zoning ordinance, with no new building over 600 feet in height, the capacity of the residential districts would be approximately 77,000,000, while the commercial districts would provide for a working population of 344,000,000! In certain older sections of Manhattan and Brooklyn specially studied, about 900 years would be required for the land now used for business to be built up to the maximum bulk permitted by the zoning law at the same rate of increase as obtained for the city in the ten-year boom period after the war."

As a result of such mistakes a general revision of zoning schemes has been advocated by some, in the interest of more stable land values and a better basis for well-considered improvements. Large-scale, low-rent housing projects, particularly in "blighted" districts where unduly high zoning classifications tend to maintain artificial values, would be aided by such a revision. Graham Aldis, writing in *Current History* for February, 1934, suggests that injustices caused by lowering classifications could be abated by permitting reclassification upwards, with majority consent, if an adequate total of projects within the higher classification could be shown to be financed and ready. "More effectual still would be the intelligent cooperation of the assessor in taking into consideration, as some assessors already do, the use for which a property is zoned."

The Federal Housing Administration has recognized the importance of wise zoning. It announced on November 30 that preference as to governmental insurance of mortgages on large-scale low-cost housing will be given to projects developed in conformity with rational community planning, protected by zoning and deed restrictions tending to assure permanent residential use.

COUNTY ZONING

Wisconsin has been pioneering in a movement to regulate land use within entire counties, particularly by the creation of forest and recreation zones where no more permanent dwellings are permitted to be built. In this way new attempts to farm submarginal land are prevented, and the requirements for highways, schools, etc. to serve a few families in a large area, are minimized. By the middle of 1934 twenty counties had enacted zoning ordinances or were about to do so, following the example set by Oneida County in the preceding year.

V. MUNICIPAL GOVERNMENT

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Civic Assn., 901 Union Trust Bldg., Washington, D. C.

American Municipal Assn., 923 E. 60th St., Drexel Ave., and 58th St., Chicago, Ill.

American Society of Municipal Engineers, 3817 Olive Street, St. Louis, Mo.

Governmental Research Assn., 722 Jackson Place, Washington, D. C.

International City Managers' Assn., 850 E. 58th St., Chicago, Ill.

National Asn. of Civic Secretaries, Wm. Penn Hotel, Pittsburgh, Pa.

National Civil Service Reform League, 519 Fifth Ave., New York City.

National Institute of Public Administration, 302 E. 35th St., New York City.

National Municipal League, 309 E. 34th St., New York City.

DIVISION VI

TERRITORIES AND SPHERES OF AMERICAN INFLUENCE

ALASKA AND HAWAII

BY STUART GODWIN

DIRECTOR OF INFORMATION, DEPARTMENT OF THE INTERIOR

ALASKA

Foreign Trade.—During the fiscal year ended June 30, 1934, commerce between the United States and Alaska increased approximately $7,000,000. About one-half of this increase is from the increased production of gold, and the other half from the fisheries industry and the increased production of furs. The balance of trade in favor of Alaska was $18,262,968.

Finance.—Cash on hand in the territorial treasury Dec. 31, 1933, amounted to $381,524.82 as compared with $271,433.46 the year before. The combined resources of territorial and national banks at the close of business June 30, 1934, were approximately as follows: capital, $927,500; surplus and undivided profits, $252,082.17; deposits, $4,374,603.65. For the previous year they were as follows: capital, $890,000; surplus and undivided profits, $840,500; deposits, $9,668,000.

Fisheries.—The total value of the Alaska fishery products in 1933 was 28% higher than the preceding year, in spite of a slight decrease in the quantity produced. Salmon products comprise about 76% in quantity and 92% in value of the total Alaska fishery output in 1933. Runs of red salmon in the Bristol Bay area were unusually abundant. The total number of salmon of all kinds taken in 1933 was 81,876,420. The number of cases packed was 5,225,604, valued at $28,376,014 as compared with 5,254,483 cases valued at $21,715,801 in 1932. Ninety-one canneries were in operation, as compared with 87 in the previous year, and the number of persons employed increased to 17,130, as compared to 15,738 in 1932. Although low prices continued on herring products, the total output for 1933 was larger than the preceding year. Thirty-one plants operated, four more than in the previous year. The total value of herring products was $1,402,194 as compared with $1,173,158 in 1932. The persons employed in this industry increased from 819 to 988. The whaling industry declined, only 182 whales being taken and the total value of the products being $68,989 as compared with $91,133 in 1932 when 270 whales were taken.

Furs.—A total of 54,550 fur seal skins was taken in the Pribilof Islands operations in 1933, an increase of 5,214 over the previous year. Of this total 44,448 were from St. Paul Island and 10,102 from St. George Island. Killings were confined practically entirely to three-year old male seals. The annual census of the first seal herd was made as of Aug. 10, 1933, after the completion of the commercial killing operations. It revealed 1,318,568 animals of all ages and classes, an increase of 98,607 during the year. These herds have steadily increased since 1910 when there were but 132,000 seals. Two public auction sales of skins from the Pribilof Islands were held at St. Louis, and 591 skins were disposed of at special sales during the fiscal year 1934. At the sale on Aug. 28, 1933, 24,476 fur seal skins brought a total gross price of $469,761.50. At the sale on April 30, 1934, 28,101 fur seal skins brought a gross price of $575,041.25. The skins sold at special sale brought $13,550.48. There were also sold at public auction 1,119 blue and 22 white fox skins taken on the Pribilof Islands. At the August sale 560 blue pelts brought an average of $29.16, while the 22 white pelts brought an average of $22.55 each. The remaining 559 blue pelts were sold at the April sale at an average of $35.72 each. In the season of 1933-1934, 214 blue and 23 white fox skins were taken on St. Paul Island and 700 blue and 2 white skins on St. George Island.

Minerals.—The total value of mineral products in Alaska since 1880, when records were first kept, is now more than $663,000,000. The peak year was 1916 when the value was $48,386,508. The decline in the value of mineral production since then has been more or less steady until the year covered by this report when the increased price of gold raised the value of all mineral production for 1933 to $12,586,000, as compared with $11,638,000 in 1932, which was the lowest figure recorded since 1904. Of the mineral wealth produced in Alaska since records were first kept, gold is responsible for more than $420,000,000, copper for about $215,000,000, silver for slightly more than $12,000,000, the balance being distributed between coal, tin, lead and others, including platinum metals. The output of gold in 1933, however, declined to 469,286 fine ounces, as compared with 493,860 fine ounces in 1932. Copper production was almost negligible, only 20,000 pounds being mined as compared with nearly 9,000,000 pounds the year before and 22,614,000 pounds the previous year. This virtual suspension of the industry was due to the extremely low price paid for copper, forcing the two principal mines in the territory to close rather than operate at a heavy loss. All platinum metals produced in Alaska in 1933 came from placers, the total production being 605 fine ounces, worth $18,600. Although tin worth more than $1,000,000 has been produced in Alaska, so far as reported only a few thousand tons of ore were shipped in 1933. This ore had an estimated content of 2.9 tons of metallic tin and was worth $2,300. The Alaska coal mines in 1933 produced 96,200 tons valued at $481,000. This is a slight decrease from the previous year, but is regarded as a minor fluctuation rather than a permanent falling off of the industry. Petroleum production was a negligible operation, considerable quantities being imported into Alaska from the United States.

Railroads.—The total deficit for rail and river boat operations was $185,362.18. The net deficit, including operating expenses of rail and water lines, less revenues of operation and non-operating income, was $178,973.33, a decrease of 30.38% from the previous year. The number of rail-line assengers carried amounted to 15,824, an increase of 2,707 over the previous year. Rail-line freight amounted to 93,512 tons, a decrease of 3,967 tons over the previous year. Of the total freight, 65,009 tons consisted of coal.

Aviation.—Commercial aviation in Alaska continued to forge ahead. Eleven years ago there was one experimental air mail contract to carry mail 300 miles from Fairbanks to McGrath. There are now 56 planes in service as compared with 42 during the preceding year, and plane miles flown total 1,126,610, as compared with 1,059,155. The number of passengers carried increased from 7,743 to 10,194. Mail and freight carried totaled 994,370 pounds as compared with 785,586 pounds the year before.

Education. — Public schools in Alaska for the education of white and mixed-blood children consist of schools within the incorporated cities and school districts and rural schools outside. Schools are supported largely by appropriations from the territorial treasury augmented by 25% of the

Alaska fund which is derived from a variety of Federal taxes collected in the territory. This fund nets the schools about $50,000 a year. Schools within the incorporated cities and school districts derive from 20% to 30% of their operating costs from local taxation, the Territory providing the balance, while all funds for the support of rural schools are furnished by the Territory. The educational question is complicated by the distribution of children in widely-separated communities and the inadequacy or total lack of transportation and communication facilities in some regions. The seasonal nature of many occupations and the nomadic life of some of the natives add to these complications. Four-year high schools, accredited by the University of Washington, are maintained at Anchorage, Cordova, Douglas, Fairbanks, Juneau, Ketchikan, Petersburg, Seward, Sitka and Wrangell. The high schools at all but Douglas and Sitka also are accredited by the Northwest Association of Secondary and Higher Schools. Non-accredited high schools are maintained at Haines, Nenana, Nome, Skagway and Valdez. Graduation from a three-year standard normal school or its equivalent is a prerequisite for the Alaska elementary certificate. High school teachers must be graduates of standard four-year colleges and must have completed a minimum of 15 semester-hours in education. During the past year the annual turnover of teachers has decreased from 40% to 18% of the total number employed. At the twelfth annual commencement of the Alaska Agricultural College and School of Mines, 20 students were awarded diplomas, as follows: 1 in chemistry, 3 in geology and mining, 3 in business administration, 3 in agriculture, 2 in general science, 1 in home economics education, 6 in arts and letters, and 1 in mining engineering. Enrollment at the college, which is located near Fairbanks, was: Freshmen, 64; sophomores, 23; juniors, 15; seniors, 25; specials, 25; short courses, 87.

Health.—An increased demand for medical services on the part of Alaska natives, coupled with a $20,000 decrease in appropriations, made necessary changes in the types of service offered. The most expensive units had to be abolished. Therefore, the Yukon River Medical Boat and the Akiak Hospital did not operate during the year. As many of the natives live at great distances from either hospital or nurses' headquarters, it was necessary to place several additional nurses and one physician on a travel status. Only nurses experienced in public health lines and those interested in preventative medicine are employed in this work. With service being rendered to a greatly increased number of natives, an effort was made to concentrate on immunizing all possible natives to diphtheria and smallpox, 2,866 native children being immunized against diphtheria, 2,245 natives vaccinated against smallpox, and 703 immunized to other diseases. Excellent results from the immunization program are apparent in the Point Barrow region, where for many years diphtheria epidemics have occurred. Diphtheria toxoid is furnished to the mission workers. Immunization of Point Barrow natives and natives coming there, along with similar work done at Wainwright, Point Lay and Point Hope, has resulted in no diphtheria reports during the year. There has been no serious epidemic of any sort among the native people in the past year. Tuberculosis is the primary cause of death among the Alaskan natives, causing more than one-third of all deaths over the last five-year period. Hospital facilities for the care of this disease are insufficient and an attempt is now being made to secure funds for the construction of several tuberculosis hospitals. The National Tuberculosis Association and other welfare organizations are becoming more interested in the situation and the combined efforts of all concerned should result in materially decreasing the incidence of this disease in the future. Much needed repairs were made during the year at the several hospitals through utilization of C.W.A. funds, a large number of destitute natives being given financial aid in this way, as practically all of the money was expended for manual labor.

Reindeer.—Estimates place the total number of animals above 500,000. They exist under conditions almost identical with cattle conditions in the West before the days of fencing. The policy of not transferring Government-owned reindeer meat to the States to enter into competition with private enterprise has been continued. The Government markets carcasses only in Alaska. Governor John W. Troy, has recommended that the ownership of reindeer by whites be abolished, if that is possible legally, with due consideration for private interests. He believes the principal end to be served through reindeer breeding and use should be the welfare and benefit of Alaska natives. He recommends that prospectors, trappers, and other residents of reindeer country should be permitted to procure them under fair regulations, but points out that a profitable industry of considerable proportions in breeding and marketing reindeer is impossible. He recommends that surplus reindeer be sold to the highest bidder and paid for at the time in cash, this fund to be used for the benefit of the Indians and Eskimos. There is considerable surplus of these animals, ranging from Point Barrow to Kodiak Island and along the Alaska Peninsula. This large number was grown from 1,280 reindeer first introduced into Alaska in 1891.

HAWAII

Foreign Trade.—Hawaii continued to maintain its favorable balance of trade. The total imports measured in terms of value fell only a very little below the figure for 1933. Imports in 1933 were valued at $63,127,987, while for the previous year the figure was $63,556,022. However, exports gained in value more than $9,000,000, reaching the figure of $94,317,696 as compared with $83,448,296. As always, the great bulk of exports went to the United States, foreign countries being represented only by the comparatively insignificant figure of $675,809. Sugar, raw and refined, was, as usual, the main item of export, being valued at $65,495,134 as compared with $57,588,502 in the calendar year 1932. Sugar production again set a new all time record, 1,035,548 tons being produced during the twelve months ended Sept. 30, 1933, a gain of a little more than 10,000 tons over the previous year. The production of pineapples, second Hawaiian industry, under a cooperative plan has been sharply curtailed during the past two years, due to over-production in the preceding years. This curtailment has proven effective and the accumulated surplus stocks in the warehouses sold. The pack of the calendar year 1932 was held to about 5,000,000 cases. In 1933 there were packed 7,815,540 cases, exclusive of pineapple juice. Sales have proven satisfactory, and the unsold carryover on May 31, 1934 was well under a million cases.

Revenues.—Customs receipts for the fiscal year ended June 30, 1934, from all sources totaled $1,471,401, a slight increase over the previous year. Internal revenue receipts for the fiscal year 1934 amounted to $5,735,328, a very considerable increase over 1933 when the figure was $3,067,249.

Population. — The population of Hawaii on June 30, 1934, was placed at 378,948, a decrease of 1,263 from the year before. These figures are based on estimates by the Board of Health. Based on the Federal census for 1930, this Board estimated the principal racial groups as follows: Japanese, 148,024; Filipino, 56,700; Portugese, 29,236; Caucasian, 47,155, including 1,267 Spanish; pure Hawaiian, 21,796; Caucasian-Hawaiian, 18,169; Asiatic-Hawaiian, 16,250; Puerto Rican, 7,280; Chinese, 26,989; Korean, 6,638; all others, 711.

Sugar.—Production of raw sugar computed as of Sept. 30, 1933, was 1,035,548 tons for the previous twelve months. This is the third successive year that production has exceeded 1,000,000 tons and surpassed by a little more than 10,000 tons the all-time high production record of the year before. Sugar continued, as usual, to be the mainstay of the Territory from an industrial and employment point of view. The price of sugar, although somewhat better than the previous year, is evidenced by the fact that, while the increase in production is relatively small, the increase in value of sugar exported increased nearly $8,000,000 over the year before.

Pineapples.—Due to large over-production a few years ago, coupled with falling purchasing power on the mainland, the necessity of adapting production to consumption led to the organization of the Pineapple Producers Cooperative Association in 1932. This limitation was effected, although it involved the sacrifice of large sums already invested. Members of this Cooperative put a new marketing agreement into effect in August, 1933, transferring all then existing stocks to the ownership of the Association. Each member then drew on the Cooperative for goods sold to consumers. Sales were pooled and the realizations prorated to members on the basis of the contribution of each to the pool. The Association of Hawaiian Pineapple Canners was dissolved and all of its assets turned over to the new Cooperative, including the experiment station, maintained on an annual budget of about $175,000. This station has to its credit notable achievements, the greatest to date being the discovery of the cause of wilt which took a heavy toll of the plants, and the development of successful methods of control. The overproduction of canned pineapples having been disposed of through limitation of the crop, the pack in 1933 was increased to 7,815,540 cases, an increase of more than 50% over the pack the year before. Despite this increase, the unsold carry-over at the end of the pack year, May 31, 1934, was well under 1,000,000 cases.

PUERTO RICO

By Ernest Gruening

Division of Territories and Island Possessions,
Department of the Interior

DESCRIPTION AND STATUS

The Island of Puerto Rico is fourth in size and is the easternmost of the four larger Antilles. San Juan, its capital, is approximately 1,400 nautical miles from New York City and 963 nautical miles from Key West. The Island is 100 miles long by 35 miles wide and has an area of 3,306 square miles. It has an approximate population of 1,623,000. The climate is warm but not uncomfortable at any time. Puerto Rico is considered the coolest region in the Caribbean tropics. The prevailing language is Spanish although both English and Spanish are used. Puerto Rico has been held by the Supreme Court to be an unincorporated territory of the United States, a status differing from that of those territories which have been incorporated into the Union.

GOVERNMENT

Organization.—Puerto Rico is governed under an Act of Congress of March 2, 1917, known as the "Organic Act," and subsequent amendments. Supreme executive power is vested in the Governor, who is appointed by the President by and with the advice of the Senate and holds office at the pleasure of the President and until his successor is chosen and qualified. The Act provides for seven departments—Justice, Finance, Interior, Education, Agriculture and Commerce, Labor, and Health. The Attorney General, who heads the Department of Justice, and the Commissioner of Education are similarly appointed by the President; the others are appointed by the Governor. The heads of the departments collectively form a council to the Governor known as the Executive Council. The Auditor of Puerto Rico is also appointed by the President.

Governor.—Robert H. Gore resigned as Governor effective Jan. 12, 1934. He was succeeded by Major General Blanton Winship, U. S. Army, Retired, who assumed the duties of the office Feb. 5, 1934. Benjamin J. Horton was Acting Governor in the interim.

Resident Commissioner.—The Island is represented in the United States by an elected Resident Commissioner, who has a seat in the United States House of Representatives, with the right to debate but not to vote.

Legislature. — Local legislative powers are vested in a Senate and a House of Representatives chosen by the electorate of the Island every four years. The next election will be held on the first Tuesday after the first Monday in November, 1936.

Judiciary. — The judicial system consists of the Supreme Court, the District Court of the United States for Puerto Rico, and subordinate courts. Appeals may be made in certain cases to appropriate higher courts, including the Supreme Court of the United States. The Chief Justice and four Associate Justices of the Supreme Court, the District Judge, District Attorney and Marshall of the District Court for Puerto Rico are appointed by the President.

Laws. — Statutory laws of the United States not locally inapplicable, except as otherwise provided, are in effect in Puerto Rico, except the internal revenue laws.

LEGISLATION

The most recent sessions held by the Thirteenth Legislature were a special session August 1-14, 1933, and the second regular session Feb. 12-April 15, 1934. Among the more important measures enacted at those sessions were acts to facilitate crop loans by Federal agencies; relief for tax-payers in arrears by providing for deferred payment over a period of ten years; reduction of high interest rates; beverage law repealing prohibition effective March 13, 1934, and imposing internal revenue taxes on alcoholic liquors and taxes on wholesalers, retailers and manufacturers; amendments to election law; creating Public Amusement and Sports Commission; validity of certificates of registered trade marks reduced to ten years; to promote and protect fishing; authorizing Treasurer of Puerto Rico to issue refunding bonds for purpose of amortizing Isabela Irrigation bonds; authorizing $120,000 bond issue for formation of an additional irrigation district; increasing number of government scholarships for promising students who are financially unable to continue schooling; to regulate traffic in explosives; annual appropriations; requiring banks to pay interest on insular or municipal funds.

ECONOMIC CONDITIONS

The general economic situation in Puerto Rico continues to present a very serious problem which is not evident from a normal interpretation of import and export statistics. For the fiscal year ended June 30, 1934, imports amounted to $64,134,937 and exports to $86,013,296, or a total trade of $150,148,233 as against $130,152,166 for the previous year. Unemployment was greater this year than in the preceding year. Allotments were made of approximately $12,500,000 by Federal Emergency agencies for various purposes in the island. The Treasurer of Puerto Rico reports that up to June 30, 1934, the sum of $6,977,929 of Federal rehabilitation money had been taken up in his accounts.

FINANCE

Although the cash in the general fund at the close of the fiscal year had been reduced from $601,506 to $144,771, there was a marked improvement in the financial condition of Puerto Rico due to the fact that a deficit of $1,083,263.28 over total current assets from the preceding year had been reduced to $278.983.84. Actual collections from all sources of revenues amounted to $11,271,064, or $1,896,705 more than last year; non-revenue receipts amounted to $2,133,564 and expenditures totalled $13,861,363. Increased excise tax collections were due chiefly to expenditure of rehabilitation money by the recipients thereof in taxed commodities and as result of income from taxes on beverages. The Insular and Municipal bonded indebtedness on June 30, 1934, amounted to $27,875,000 and $15,997,300, respectively. Sinking funds to meet this indebtedness were $149,599 and $1,857,033, respectively. Additional insular bonds of $212,000 were issued and other bonds were paid off in the sum of $879,000, a net reduction of $667,000. Total assessed valuation of all property was $297,119,629, a reduction of $17,200,445 from preceding year. Average tax rate for the past year was $22.1551 per thousand. There were 14 banks, with 18 branches, operating on June 30, 1934. Aggregate deposits amounted to $31,011,701, an increase of over 15% at close of the previous year. The amount of currency available in Puerto Rico is estimated at about $6,400,000.

EDUCATION

There are 1,799 schools, divided among 23 high schools, 293 elementary urban schools, 1,444 elementary rural schools and 39 second units. A total of 239,495 pupils was enrolled as compared to 233,457 in 1933. Average daily attendance was 214,220. Seventy-five per cent of the students are in the first four grades. The total number of school buildings was 2,075, of which 1,053 are the property of the government. Value of buildings owned was $10,278,754; value of those rented was $1,331,472. There were 4,991 teachers; 4,460 were paid from insular budget, 170 by municipalities and 361 from emergency relief funds. There are 46 school districts and 665 school lunch rooms; the average number of pupils served daily was 32,638. Forty private schools, accredited by the Department of Education, were in operation. The total enrollment in the private schools was 7,522, and 373 teachers were employed.

HEALTH

There was no great change in health conditions during the year. There were 22,455 cases of influenza, 43,679 cases of malaria and 6,459 cases of tuberculosis reported to the Bureau of Transmissible Diseases. The average death rate from all diseases was 22.6 per 1,000 in 1933 as compared with a death rate of 22.3 per 1,000 in 1932. The average death rate from all causes in the continental United States in 1933 was 10.7 per 1,000. Deaths from tuberculosis averaged 357 per 100,000 as compared with a death rate of 55.5 per 100,000 in the United States from the same cause. Thus, the death rate from all causes in Puerto Rico in 1933 was more than twice that of the continental United States, while the deaths from tuberculosis alone were nearly 6½ times greater. This high rate of mortality is due in large part to the over-crowding of the Island; its population is estimated at 1,623,000, or a density of 491 inhabitants per square mile, as compared with a density of 41.3 inhabitants per square mile in the continental United States. The first census, after the United States took possession of Puerto Rico in 1898, was taken in 1899, at which time the population was given as 953,243; the census taken in 1930 showed that the population had increased to 1,543,913; this is an increase of approximately 62% during a period of 30 years. The average number of births per 1,000 in Puerto Rico and the continental United States in 1933 was 38 and 16.6, respectively. The birth rate exceeded that of the United States by 129%, and in the island itself births over deaths increased 15.4%. There were 20 health units in operation, covering a population of 1,054,575. Ten hospital units with a capacity of 100 beds each were constructed from funds made available by the Civil Works Administration.

VI. TERRITORIES AND SPHERES OF AMERICAN INFLUENCE

THE PHILIPPINE ISLANDS

By Creed F. Cox

Brigadier General, U. S. A.; Chief, Bureau of Insular Affairs,
War Department

GOVERNMENT

Political Status. — The status of the Philippine Islands is that of an unincorporated territory of the United States. Citizens of the Islands owe allegiance to and are under the protection of the United States, but are not citizens of the United States. Citizens who have had service in the United States Navy, Marine Corps or Naval Auxiliary Service may become citizens of the United States.

Executive Departments.—The government of the Philippine Islands is organized as prescribed by the Act of Congress approved Aug. 29, 1916, commonly referred to as the Organic Act for the Philippine Islands. This Act is in fact the constitution for the present insular government. The executive branch of the government is headed by the Governor General, who has general supervision and control of all of the departments and bureaus of the government, and, in general, appoints, with the consent of the Philippine Senate, the heads of executive departments and other officials of the insular government. The Governor General and the Vice Governor (who is *ex-officio* head of the Department of Public Instruction) are appointed by the President of the United States, by and with the advice and consent of the Senate. The Auditor and Deputy Auditor are appointed by the President.

The Legislature consists of a Senate (24 Senators) and a House of of Representatives (96 Representatives), the members of which are chosen by the electorate of the Philippine Islands, with the exception of nine Representatives and two Senators appointed by the Governor General to represent the Non-Christian provinces which are administered under the direct supervision of the insular Bureau of Non-Christian Tribes. In accordance with the terms of the Organic Act, general legislature powers are vested in the Philippine Legislature, except that trade relations between the United States and the Islands are governed exclusively by laws of the Congress of the United States and acts of the insular legislature affecting the tariff, immigration, lands of the public domain, timber, mining, currency and coinage do not become law until approved by the President of the United States. The veto power over local legislation is vested in the Governor General. In case of the approval of a law by a two-thirds vote of both houses over the Governor General's veto, and in case the Governor General shall then not approve, it shall be submitted to the President of the United States for approval. Congress retains authority to annul any insular legislation. This power has not been exercised for the purpose of annulling any laws, but it has been exercised in the ratification of certain acts of the Philippine Legislature.

The statutory laws of the United States do not apply to the Philippine Islands except when they specifically so provide, or it is so provided in the Organic Act. The Islands are represented in the United States by two Resident Commissioners who are elected by the Philippine Legislature and have seats in the United States House of Representatives with the right to debate but who do not vote.

Judiciary. — The highest judicial authority is the Supreme Court of the Philippine Islands, which has original jurisdiction in certain cases and general appellate jurisdiction as regards the decisions of the subordinate insular courts. Its members are appointed by the President, by and with the advice and consent of the Senate of the United States. Its judgments are, in certain cases, subject to review by the Supreme Court of the United States.

PHILIPPINE INDEPENDENCE

Island Legislation.—The principal issue before the third and last regular session of the Ninth Philippine Legislature was the question of acceptance or rejection of the Act of Congress commonly known as the "Hawes-Cutting Act" entitled "An Act To enable the people of the Philippine Islands to adopt a constitution and form a government for the Philippine Islands, to provide for the independence of the same, and for other purposes." By a concurrent resolution dated Oct. 17, 1933, the Legislature declined to accept the Act. The Hawes-Cutting Act lapsed on Jan. 17, 1934, one year after its enactment, in accordance with the provisions contained therein. In the resolution declining to accept this Act, the Legislature named a legislative committee to come to the United States and "express to the Government and people of the United States the objections to the said law and the reasons therefor, and petitions the President and the Congress of the United States for changes therein or the enactment of such new legislation as will fully satisfy the aspirations of the Filipino people to become at the earliest practicable date a free and independent nation, under conditions and circumstances that will not imperil the political, social, and economic stability of their country."

The 73d Congress at its Second Session again took up the question of Philippine independence and enacted the "Tydings-McDuffie Act" entitled "An Act To provide for the complete independence of the Philippine Islands, to provide for the adoption of a constitution and a form of government for the Philippine Islands, and for other purposes." This Act was approved by the President on March 24, 1934, and the Philippine Legislature, which convened in Special Session on April 30, 1934, unanimously accepted the new independence law (Public No. 127, 73d Congress) by a concurrent resolution dated May 1, 1934. It became effective on the same date in accordance with the provisions of Section 17 thereof. At this same session provision was made for the election of delegates to the Constitutional Convention to formulate and draft a constitution for the government of the Commonwealth of the Philippine Islands. The election of delegates was held on July 10; the constitutional convention assembled in Manila on July 30; and at the time of writing this article (November 30) is still engaged in framing a constitution.

Congressional Legislation. — The Tydings-McDuffie Act provides for the establishment of a Commonwealth Government under a constitution duly drafted by a constitutional convention elected for the purpose and for the complete establishment of Philippine independence ten years after the date of the inauguration of the Commonwealth Government. Provision is made for the election of officers for the Commonwealth Government, for the appointment by the President of a United States High Commissioner to that government, and for the selection of one Resident Commissioner to the United States. The constitution is to be submitted to the President of the United States and, after approval and certification by the President, is to be submitted to the people of the Islands for their ratification or rejection, a vote favorable to the constitution to be deemed an expression of the will of the people in favor of independence. Under the provisions of the law, trade relations will continue to be governed exclusively by Congress. The law contemplates no changes in existing trade relations, except as regards quotas on sugar, coconut oil, and cordage, until the beginning of the sixth year after the Commonwealth Government is inaugurated. At that time, a series of taxes increased yearly on Philippine exports to the United States are required to be imposed by the government of the Commonwealth, the proceeds to be applied to the reduction of the public debt of the Islands. The immigration provisions, effective immediately on acceptance of the Act, allot to the Philippine Islands a quota of 50 for each year. The United States reserves the right to maintain military and other reservations in the Islands until independence is established and to occupy naval reservations and fueling stations after independence. The Act contemplates that efforts shall be made by this Government to secure the perpetual neutralization of the Islands, if and when independence becomes effective.

The provisions of the Act that immediately became effective are those relating to immigration, which placed Filipinos on a status of aliens as regards entry into the United States. Upon the inauguration of the Commonwealth Government and the transfer of the functions of government, other provisions will become effective, including those establishing quotas on certain of the products of the Philippine Islands now entering the United States free of duty, the appointment of a United States High Commissioner, and a change in the number of Resident Commissioners to the United States.

Other legislation enacted at the last session of Congress vitally affecting the interests of the Philippine people included a provision in the Revenue Act of 1934 imposing a tax of 3c. per pound on the processing of Philippine coconut oil in the United States and an amendment of the Agricultural Adjustment Act making sugar beets and sugar cane basic agricultural commodities and providing for the extension of Title 1 to the Philippine Islands. Pursuant to the provision of the Agricultural Adjustment Act as Amended (Public No. 213, 73d Congress) the quota of Philippine sugar for the calendar year 1934 has been fixed at 1,015,000 short tons.

Triennial Elections.—The general triennial elections were held on June 5. The campaign was bitterly contested and centered around two opposing groups—one group known as the "Pros" had favored the acceptance of the Hawes-Cutting Act and the other group, known as the "Antis," had opposed acceptance and had succeeded in having the act rejected. The unanimous acceptance of the Tydings-McDuffie Act on May 1 had removed the only important current political issue and the campaign hinged largely on the question of personal leadership.

FINANCES

Balanced Budget.—The Governor General reports that on his arrival in Manila the finances of the government were basically in good condition. Sinking funds and currency reserve funds had been adequately maintained, but the cash surplus which had been built up during a long period of prosperity was at the point of exhaustion through failure to reduce expenses to actual income. He found this the most important problem confronting the government and immediately directed efforts towards remedying the situation. As a result of his efforts and with the cooperation of the Philippine Legislature, the budget was balanced without resort to new taxes. It is reported that within the central government every department and every bureau lived within its income and closed with a surplus. All government-owned companies showed profits.

Revenues and Expenditures.—The central government realized a total income of $35,012,966.90, a decrease of $2,345,419.23 from 1932. The total expenditures for the year amounted to $34,767,514.93, a decrease of $5,080,928.68 from the expenditures made in 1932. The total current surplus as of Dec. 31, 1933, was $33,612,013.59, compared with $33,366,561.62 in 1932. The invested surplus on Dec. 31, 1933, amounted to $49,700,229.70, as compared with $45,813,499.33 for the previous year, an increase of $3,886,780.37.

Insular Debt.—A net reduction in the total outstanding bonded indebtedness of the Philippine Islands of $1,685,150 was made for the year 1933. On Dec. 31, 1933, the outstanding bonded indebtedness of the insular government amounted to $62,148,850, and that of its provinces and municipalities to $9,336,850, or a grand total of $71,485,700. If from this total there be deducted collateral bonds issued against provincial and municipal bonds in the amount of $6,797,850, and the cash accumulated in the various sinking funds, the resulting net balance of insular bonded indebtedness as of Dec. 31, 1933, will be $52,640,981.10.

EXTERNAL TRADE

External trade during 1933 showed an increase both in volume and in value over 1932. Trade with the United States and foreign countries amounted to $180,451,815, an increase of $5,718,649, or 3⅓ per cent over 1932. Exports were valued at $105,771,053, an increase of 11 per cent. Trade figures show a great dependence on the American market. Exports to the United States comprised more than 86% of the total. Total imports amounted to $74,680,762, a decrease of 6 per cent. Those from the United States comprised 56% of the total. The balance of trade in favor of the Islands amounted to over $31,000,000, entirely due to increased shipments of sugar, coconut oil, copra, cigars and cordage to the United States.

The Governor General calls attention to the fact that this favorable trade balance with the United States alone amounted to 69% more than the expenses of the government for 1933. The establishment of a free gold market during 1933 gave a tremendous impetus to the mining of gold in the Islands. During 1933, gold bullion to the value of nearly $5,000,000 was shipped to the United States.

EDUCATION

The total school enrollment remained practically the same as the year before. For the school year 1932-1933 it was 1,204,375 as compared with 1,213,419 the year before. The decreased enrollment this year was only in the secondary schools. Total school expenditures decreased from $15,132,184 to $13,955,530. In view of the very unusual shortage in funds, the educational service was fraught with serious hardships. Notwithstanding this, the year was not without gratifying accomplishments. The most substantial progress was the reopening of 3,760 classes in 945 municipalities in all the provinces. Enrollment in the elementary grades slightly increased, instruction gained in efficiency, and concrete progress was made in health and vocational education. Despite the remarkable school development since its start in 1900, the Philippine government is today providing school facilities for only 37% of Filipino children of school age, *i.e.* between the ages of 7 and 17, inclusive.

HEALTH

Conditions of public health were generally good throughout the year. There were outbreaks of cholera in some of the Visayan Islands, and 2,188 cases were registered, mostly in the provinces of Samar, Leyte, Bohol and Cebu. Anti-cholera vaccination was resorted to extensively, and the disease was promptly placed under control. The death rate per 1,000 population was 20.24 as against 18.57 in 1932. Infant mortality increased both in Manila and in the entire Philippines. During August, 1933, there were reported 12 cases of poliomyelitis, a disease hitherto not known to have occurred in the Philippines. The serious tuberculosis situation appeared to take a turn for the better. A decrease in the number of cases, both in Manila and in the provinces, is reported. A traveling *x*-ray service was inaugurated on July 1, 1933, and various other means were directed towards a more effective control of this disease. During 1933, 2,386 positive lepers were detected and isolated; 104 negatives were released.

THE VIRGIN ISLANDS

By Stuart Godwin

Director of Information, Department of the Interior

GOVERNMENT

The three islands in this group, St. Thomas, St. John and St. Croix, were purchased from Denmark in 1915. Until 1931 they were under the jurisdiction of the Navy Department. In that year they were transferred to the Interior Department and since then have enjoyed a territorial status, with a civilian governor.

SUGAR PRODUCTION

While sugar production in St. Croix has been less than in the two preceding years, actual production was greater when measured by the amount of cane ground and juice extracted. Increased percentage of cane juice and of molasses, sugar and sirup is due to the resumption of the distillation of the famous St. Croix or Santa Cruz rum since the repeal of the Prohibition Amendment. The homestead projects have added to the sugar cane acreage, and the plans of the Virgin Islands Company provide for clearing and planting several thousands of additional acres. This Company was incorporated to aid an economic rehabilitation of the Islands. The general plan is for providing sugar factories, cane lands, and rum distilleries in St. Croix; a rum distillery, a hotel, and an office building in St. Thomas, and bay tree lands in St. John, financed by an appropriation of $1,000,000 by the Public Works Administration. These properties are to be leased to the Virgin Islands Company for the industrial development and general economic and social welfare of the Islands. The Company is a partnership program by which the Federal Government and the people of the Islands cooperate.

BANKING

The National Bank of the Danish West Indies had the exclusive right to issue bank notes in the American Virgin Islands for a 30-year period through a concession granted by Denmark and guaranteed by the United States at the time of the change of sovereignty. This concession expired June 20, 1934, and the change to the United States currency was effected July 1, 1934. It is planned to have an American banking institution in operation as soon as possible. The Reconstruction Finance Corporation has pledged $135,000 toward the capital stock of a new bank. It made the condition that there should be subscribed from local sources $50,000. This amount has been oversubscribed, but various legal and technical difficulties have delayed the establishment of the new bank.

TRADE

The tourist trade during the past year was three or four times as great as in the preceding year. The Bluebeard Castle Hotel is nearing completion on a hilltop overlooking St. Thomas and its famous harbor. The hotel opened for business on Christmas day, 1934. A beach house is being constructed at Lindbergh Bay beach. Near this a site is being reserved for a second hotel when needed.

Ships entering St. Thomas harbor for the year numbered 511, with a gross tonnage of 2,006,150 tons. This is an increase of 39 ships over the previous year. The port enjoyed its best year since 1931, having an operating surplus of nearly $12,000. Ships calling for bunker coal and oil numbered 203 as against 182 the previous year. This is the most important activity of the harbor of St. Thomas. A new steamship line has recently begun to serve the Islands, and one of the principal air services continues its weekly connection by plane with the mainland.

AGRICULTURE AND INDUSTRY

Sugar cane breeding has been carried on actively, 100 acres of the best varieties being planted to furnish seed for next year. Rum experiments were begun to determine differences in quantity, quality, and flavor. The tomato crop was not as satisfactory as usual because of heavy rains at the critical period. A greatly increased acreage is being planted for next year.

Homesteading has made great progress in St. Croix. Four years ago 80% of the land was owned by a score of men and 80% of that land was used for grazing, 10% was in bush, and only 10% under cultivation. Homesteads averaging six acres have been created for 230 farmers, roads built, drainage installed, and the land plowed for the homesteaders when desired, the cost of this service to be taken out of the first crop. Contracts were made to amortize the purchase price plus 4% interest over 19 annual payments. The plan has worked well, less than 10% of the homesteaders having had to be replaced. More than 90% made their first payment last July from crops on their land. The average annual purchase payment per acre is less than half the old rental price. The same plan had gone forward on the other islands on a smaller scale.

HEALTH

The outstanding health problem has been malaria. There were 263 cases during the first three months of the fiscal year 1934 in St. Thomas and St. John. In St. Croix 279 cases were reported during the fiscal year, with a decided drop during the last few months of the year. This was combatted by careful control of breeding places, so that by the end of the year there were practically no cases, only 18 having been reported during the last three months of the year. Dr. Walter C. Earle, malaria expert, and E. H. Magoon, sanitation drainage engineer, engaged through the Rockefeller Foundation, made a survey of the danger areas. The United States Army engineers then planned for the drainage and filling required. A Public Works Administration allotment of $109,200 for filling swamps has been provided, and work will begin shortly.

GUAM AND AMERICAN SAMOA

By B. L. Canaga

Captain, U. S. N.; Office of Island Governments, Navy Department

GUAM

Government.—In December, 1898, the President placed Guam under control of the Navy Department. The Governor is a naval officer, appointed by the President. The inhabitants are governed under the Spanish laws that existed in 1898, modified and supplemented as required for local conditions by the Governor whose executive orders have the force and effect of law. A new set of civil and criminal codes and procedure in the judiciary system was completed during the fiscal year, 1933. There is a Guam Congress which assembles periodically. It has no legislative authority, but acts entirely in an advisory capacity. The present Governor of Guam is Capt. George A. Alexander, U. S. N. The seat of the island government is Agana.

Population.—The total population on June 30, 1934 was 20,391: natives 18,994; non-natives residing in Guam, including families, 746; naval personnel 651. The native population increased 517 during the fiscal year, 1934. The natives are known as Chamorros. They are of Malayan origin, but have strains of Spanish, Mexican, Chinese, and Philippine blood. Since coming under the American jurisdiction, the people of Guam have been regarded as wards of the United States Government.

Agriculture.—The main occupation of the natives is agriculture, nearly every family owning and cultivating small farms which supply their principal necessities of food. Some agricultural products, principally alligator pears, are exported to foreign markets, both China and the Philippines, but the public market, which continues to be a great success, still absorbs the greater part of the produce not needed by the growers themselves, the cash sales during the past fiscal year amounting to $13,066. Efforts to increase the production of kapok, which thrives in Guam, have been continued, but as yet the supply no more than meets the demand.

Trade.—The copra export was 1,874 tons or about 100 tons more than the previous year. The price at the close of the fiscal year was $0.80 the hundred pounds, or some $0.08 below the price at the end of the previous year. The balance of trade against Guam for the fiscal year, 1934, was $301,490.

Banking.—There is one bank in Guam which was established in 1915. The capital stock of $15,000 is owned by the Naval Government of Guam which conducts the business of commercial banking as a division of the treasury of that government. During the fiscal year, 1934, the bank financed shipments of merchandise imported by the merchants of Guam to the value of $267,387.22. Gross earnings for the fiscal year were $22,521.23, and net earnings $4,513.25.

Shipping.—Few ships call at Guam on the passage between the United States and the Orient. During the fiscal year, 1934, 42 vessels entered, and cleared, Apra Harbor. Of these, 18 were government vessels. About 12,205 tons of freight and coal were handled during the year.

Health.—The general health of the island has been very good during the past year. The naval hospital has functioned to capacity. The care of chronic cases requiring prolonged hospitalization and the care of tubercular cases constitute major problems. The gradual increase in the population has created an inevitable demand for additional hospital services. Susana Hospital has likewise been utilized to capacity and the value of this small pay institution becomes more apparent as time goes on. Sooner or later the facilities of this hospital will have to be extended.

The Naval Government's annual health contest to improve the general hygiene and sanitary conditions of the homes continues to arouse the interest and enthusiasm of the people. A decided general improvement has been noted. At present there are four isolated districts without medical services and, due to their increasing population, plans are under way to provide the inhabitants with limited medical facilities.

There were no new cases of leprosy found during the year. Two Guam lepers in the Culion Leper Colony in the Philippines died during the year, leaving eight cases under treatment in that colony at the end of the year. The native insane patients were cared for in the New Insular Psychopathic Hospital in Manila. There was one new commitment from Guam during the year, and one death occurred, leaving six patients under treatment in that institution at the end of the fiscal year.

Education. — Education continued as the largest activity of the Naval Government, but free education is in keeping with true American tradition and is gradually showing its effects in a more enlightened Chamorro people. This year saw the graduation of the first class, consisting of 16 young men, from the Agricultural School. General education for these young men and two years training in agronomy, animal husbandry, and other up-to-date scientific farming methods are felt to be a fine beginning for a highly important phase of island development and progress.

During the past year two new school began operations in isolated districts. Evening classes for adults are being inaugurated, principally for instruction in the English language. The educational organization comprises 32 schools classified as follows: 22 academic schools (pre-primer to 6th grade), 1 junior high school (7th to 9th grades), 1 evening high school (10th to 12th grades), 2 American grade schools for the children of service personnel, 1 private school (pre-primer to 11th grade), 4 industrial units, 1 agricultural school and farm of approximately 15 acres. All schools, except the private schools, are conducted entirely by native teachers, 182 being employed.

AMERICAN SAMOA

Government.—Capt. G. B. Landenberger U. S. N., was Governor until April 17, 1934 when he was relieved by Capt. Otto C. Dowling U. S. N. The policy of the Naval Government of ''Samoa for Samoans, no alienation of lands or exploitation of the natives,'' has rigidly been adhered to, as such a policy assures the existence of the Samoan race. The failure of the 73rd Congress, 2nd session, to pass the Samoan Organic Act elicited little comment from the natives who, nevertheless, are keenly interested.

Revenues.—The actual receipts for

the year are $86,232, and expenditures $83,144, giving a surplus of $3,088. The only direct tax is the poll and school tax, with the exception of an insignificant tax on freehold property and leases. During the year there were 2,223 taxpayers who paid taxes amounting to $18,108.

Copra.—The Island Government, at the request of the Fono, handled the copra crop for the past year and is handling it for the coming year. The world decline in the price of copra has worked a severe hardship upon the Samoans, copra, other than a limited sale of curios, mats, etc., being the sole support. The present price of 45 cents per 100 pounds to the producer reduced the crop to 609 tons, which is only about one-third of that of the years of prosperity. The copra fund showed a deficit for the year of $1,972. The outlook on copra for the fiscal year, 1935, is not considered good. In 1930, receipts for copra amounted to $132,492 as against $14,090 for 1934.

Population. — The population of American Samoa, including Swains Island, on May 31, was 11,103, an increase of 330 over the previous year.

Education.—Through the influence of western civilization, American Samoa is undergoing a change. In view of this changing condition, the objective of education is to conserve the best Samoan culture and at the same time to give acquaintance with the intellectual tools and social concepts and institutions of the West. There is a Board of Education, a Director, a Superintendent, and such other officers deemed necessary, all appointed by the Governor. The present teaching staff consists of 50 teachers, of whom seven are white and 43 are Samoan. Four of the teachers are women—three white, and one Samoan. There are 20 schools in the public school system, having an enrollment of 2,186. English is the only language medium. The Samoan Institute for teachers, the expense of which is being born by the Barstow Foundation, opened the last of June and is proving a fine success to the benefit of the school teachers. The pastors of four denominations (Congregational, Catholic, Mormon, and Wesleyan) conduct schools in Samoan before and after the public schools meet. Religion is the main subject. There are, in addition, five parochial schools conducted by missionaries having eight white, and nine Samoan teachers with an enrollment of about 480. No subject can be taught in a private school that has not been approved by the Board of Education. Agriculture is closely linked up with education, and the new Superintendent of Education is a trained agricultural expert.

Health.—The general health of the natives of American Samoa was considered favorable during the year. Tuberculosis and pneumonia were the greatest causes of death, the former causing 36 deaths and the latter, 34. The crude death rate was 13.82 per 1,000. The infant mortality rate was 67.10 per 1,000 living births. Health education is being continually taught in all schools and by lectures to the people by the Governor and the medical members of his staff. A vigorous campaign against yaws is being waged continuously. There is one small hospital and four outlying dispensaries.

THE DISTRICT OF COLUMBIA

By W. Reed West

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SLUM CLEARANCE

The problem of eliminating slum areas in the District of Columbia has been under discussion for years. There are in the District around 10,000 people living in alleys under congested conditions. These alleys constitute hidden communities and may easily become breeding places for crime. A study of the figures upon crime in 1929 revealed that there were about 3½ times as many arrests for misdemeanors and felonies (excluding traffic offences) among the alley population as among the street population. In addition, they offer a menace to health as a result of unsanitary conditions. The death rate from tuberculosis among the inhabitants of alleys appears to have been about 4½ times that of the street population. The movement for the abolition of alley dwellings has continued over a long term of years. In 1914, restrictive legislation actually was enacted, but action under it was later postponed because of our entry into the war, and other causes. Definite action has now been taken to end the alley problem. Congress has authorized (73d Cong., 2nd sess., chap. 465) the President to purchase land and buildings in alleys. He is given the authority to institute condemnation proceedings, and to appoint a Federal or District of Columbia official or agency to act for him. After July 1, 1944, alley dwellings are to be illegal.

LIQUOR REGULATION

The repeal of the Eighteenth Amendment placed upon Congress the problem of determining the status of liquor in the District. The solution arrived at was the repeal of the National Prohibition Act in so far as it applied to the District, and the setting up of a system of private sale under public control. The Commissioners of the District are authorized to prescribe rules and regulations concerning the manufacture and sale of alcoholic beverages and concerning the issuance of licenses to sell. A board of three persons, appointed by the Commissioners, and serving for overlapping four-year terms, is authorized to issue licenses to sell under regulations prescribed by the Commissioners. The revocation of licenses is subject to appeal to the Commissioners. The Act sets forth the various classes of manufacturers', wholesalers', retailers', and solicitors' licenses, and fixes the fees for each class. The Act contains many detailed provisions in the nature of regulations. (Chap. 4, as amended in chaps. 181, 552, 588, 600.)

BANKING

The Banking Act of June, 1933 removed the double liability of shareholders on new issues of stock in national banks, but it did not affect the other banks of Washington. The purpose of the Act had been to aid in the reorganization or recapitalization of the national banks. There were, however, other banks in Washington that were in need of similar assistance. To meet this need, Congress (Chap. 14) removed the other banks from double liability upon any future issues of stock. Another Act (Chap. 96) authorized building associations to acquire, by purchase or exchange of mortgages or other paper secured on real estate, bonds of the Home Owners' Loan Corporation and to hold them as assets at par value, and also authorized such associations to purchase shares of Federal corporations authorized by law to lend to building and loan associations. The legislation was believed necessary in order to permit the building associations to aid distressed home owners by exchanging their mortgages for the Home Owners' Loan Corporation bonds.

INSURANCE

Industrial life insurance presents certain peculiar problems. The policies are usually issued without a physical examination of the insured. Instead, the applicant for insurance is required to warrant that he is in sound health in every respect. Often it is impossible for the applicant to know of the existence of unsound conditions, especially in their early stages. Payment on such policies might be refused on the ground that the insured had not been in sound health at the time of his application, even though his statement was made in good faith. In an act dealing with industrial life insurance (Chap. 373) Congress has now provided that good faith shall constitute a material element in determining the validity of the policy and that it shall not be held invalid because of unsound health unless it is proved that at or before the date of issue of the policy, the insured or applicant had reason to know the facts on which the defense is based, or that the insured or applicant procured the policy in bad faith. In addition, it is provided that the policy shall be incontestable on grounds of health after a period of two years. Agreements in conflict with the above provisions are to be void. The act permits the assignment of policies, which has been impossible according to the terms of some policies. It also permits the naming of a beneficiary. Usually, beneficiaries have not been named in these policies, a ''facility of payment'' clause being substituted to permit the company to pay promptly to the person deemed by it entitled to the proceeds. The act gives the beneficiary a prior claim for a period of 15 days, before the company may proceed according to the principle of facility of payment. This act is understood to be the only one of its kind in the United States, despite the fact that the nature of industrial life insurance calls for special regulation. Usually the policies are for small amounts, averaging around $200, and are intended in most cases to cover burial expenses. Payments on premiums usually are made weekly. This type of insurance is used mostly by the poor. The total number of policies is large, for there are around 700,000 outstanding in the District and 90,000,000 in the United States. Under these circumstances, it is not unlikely that legislation somewhat along the lines of this District legislation will eventualy be considered in the states.

The life insurance code of the District has been revised and brought more into line with recent regulatory laws in an act (Chap. 672) that in general follows the New York law. Revision of the insurance code has been under consideration for twelve years, but the present act is limited to life insurance alone. It represents an effort to bring together the best features of the laws of the most progressive states upon life insurance.

Under the laws of the District the Superintendent of Insurance has had authority to license workmen's compensation insurance companies but he has had no authority to control their rates. Abuses in connection with ''minimum rates'' were thought to exist. For this reason the Superintendent of Insurance has been authorized (Chap. 144) to withdraw his approval of rates that in his judgment are inadequate or unreasonable. Appeal from his decision may be taken to the Supreme Court of the District.

MINOR LEGISLATION

By act of Congress (Chap. 161) a boxing commission of three members was set up for the purpose of regulating boxing in the District. The members of the commission are to serve without salary. Boxing contests may not be held without permission of the commission. Another act (Chap. 391) extends the jurisdiction of the Federal Board of Parole so as to give it the same powers over persons convicted in the District of crimes against the United States and confined in Federal institutions, as are possessed by the District Board of Indeterminate Sentence and Parole in respect to prisoners held in District institutions. The Federal Parole Board had no jurisdiction over persons who have been given indeterminate sentences, and such sentences are given for felonies in the District. It would, therefore, have been illegal to send persons with indeterminate sentences to Federal prisons and penitentiaries had the Federal board not been given this jurisdiction. Another act (Chap. 671) authorized the expenditure of $3,600 annually, for the fiscal years 1935 to 1943, under regulations of the District Board of Education, for aid in the education of the children of persons who lost their lives in the World War.

CIVIL SERVICE

In November, 1930, a plan was put into effect under which positions in the District of Columbia might be filled through the Federal Civil Service Commission (*see* THE AMERICAN YEAR BOOK for 1930). An order of the Commissioners of Dec. 15, 1932, set forth the regulations and designated the positions that were excepted from the requirement of appointment through the Civil Service Commission. On Sept. 27, 1934, the plan was altered to the extent of exempting 27 of the more important positions from this civil service protection in addition to those mentioned in the order of 1932. The number of positions affected by this latest order is small, but since they are in the upper ranks of District offices, their importance is out of proportion to their number. Their removal from civil service protection also is significant in that it represents a step backward in the process of realizing the possibilities in the plan of 1930.

SPHERES OF AMERICAN INFLUENCE

By Roy Malcom

Professor, University of Southern California

CUBA

Labor Situation. — Threats of strikes in Cuba in early December, 1933, caused some concern in the United States because of the fact that if the strikes were called they would materially affect the American-owned Compañia Cubana de Electricidad, a $200,000,000 corporation, the largest American corporation in Cuba. While it appeared, on the whole, that the Grau regime was travelling to the left in its social policies, the Cuban chief of staff, Col. Fulgencio Batista, on Dec. 8 warned the employees of this large electric company that if they were to strike or were to intefere with the operation of the plan, American intervention would result. On Dec. 6, 1933, President Grau ordered the Compañia Cubana de Electricidad to cut its rates an average of 45 per cent throughout Cuba. This was quite important in view of the fact that the company is the key to the whole labor situation throughout Cuba. Sugar mills, water supply plants, factories, in a word, industry depended upon the company. On Dec. 8, 1933, Colonel Batista probably prevented a strike of the employees of this company by a show of force.

''Leftist'' Policy of Grau Regime. —The ''leftist'' policy of the Grau regime seemed to have popular support throughout Cuba. In the latter part of December, 1933, a great mass demonstration of 3,000 Cubans denounced the Platt Amendment and demanded that all companies employ Cuban labor up to 80 per cent. Quite a bit of American-owned property was seized under the orders issued by Dr. Antonio Guiteras, Secretary of the Interior and War. The American Government had adopted a ''watchful waiting'' policy toward the Grau regime and, by Jan. 1, 1934, there was no indication that President Roosevelt would recognize President Grau's government.

Effect of Montevideo Conference. —In the closing days of 1933 the Seventh Pan-American Conference was held at Montevideo from Dec. 3 to Dec. 26. The Conference had a very definite effect upon American-Cuban relations. On Dec. 28 President Roosevelt, at the Wilson dinner in Washington, declared that ''a better state of feeling among the neighbor nations of North and Central and South America exists today than at any time within a generation.'' Dr. Ernest Gruening, general advisor to the United States delegation at the Conference, stated that ''the really outstanding achievements of the Conference relate to peace and good will. It endowed Pan-Americanism with new life. It established friendship for the United States and faith in its purposes on a plane higher than ever before.''

Fall of President Grau.—On Jan. 15 the Revolutionary Junta, which had in Sept., 1933, dismissed President Carlos Manuel de Cespedes, dismissed President Grau San Martin. What share the United States had in the unseating of President Grau was a matter of much dispute. Hubert Herring, director of the Committee on Cultural Relations with Latin America, writing in *Current History* (March), states that the "United States helped to unseat Grau by withholding what in the long run is an absolute essential to the stability of a Cuban government—recognition by the American Government. To a limited point the failure to recognize aided Grau. It persuaded the Cubans that Grau was not there by permission of the United States. Beyond that point, non-recognition became an increasing threat to his stability. Non-recognition meant the withholding of credit, and without credit the sugar crop would not be harvested. It meant the postponement of negotiations for the fixing of a sugar quota, for the arrangement of more favorable tariff terms. Without these Cuban economic life was doomed."

American Recognition of Mendieta.—Carlos Hevia was President for two days and then Carlos Mendieta was elevated to the Presidency on Jan. 18, and was later recognized by the American Government.

Sugar and Liquor Quotas.—On Feb. 10, Cosme de la Torriente, Secretary of State under the new Mendieta regime, expressed official appreciation of the fact that President Roosevelt had recommended that a sugar quota of 1,944,000 short tons be granted Cuba for 1934. This was followed on Feb. 14 by the announcement of the American Federal Alcohol Control Administration that, until March 1, unlimited amounts of alcoholic beverages produced in and exported from Cuba would be allowed to enter the United States.

U. S. Aid to Economic Recovery.—It was announced in Washington on Mar. 29 that the United States was contemplating four measures that would aid in the economic recovery of Cuba. These steps included a fair sugar quota for Cuba, a new commercial treaty favorable to Cuba, using the newly organized Second Export-Import Bank, created by order of President Roosevelt on March 19, to stimulate commerce between the United States and Cuba, and, lastly, a modification of our Permanent Treaty with Cuba. In announcing these steps to be taken, Assistant Secretary of State Sumner Welles stated: "The time has come when Cuba should stand on her own feet, when the Cuban people should solve their own destinies, and govern themselves as they see fit."

New Treaty Replacing Platt Amendment.—On May 19, President Roosevelt sent to the Senate a treaty which made history in the Western Hemisphere. On May 31, it was ratified by the Senate without opposition and with very little debate. Senator Key Pitman of Nevada, Chairman of the Senate Foreign Relations Committee, commenting upon the fact that the new treaty abandons the right of the United States, under the Platt Amendment in the treaty of 1903, to intervene in the internal affairs of Cuba, stated that we can now resort to international law instead of operating under our contractual relations with Cuba. The negotiation of this treaty was accepted in most quarters as further proof that the Roosevelt Administration was opposed to armed intervention in Latin-American countries.

Trade Agreement.—On August 24, the American State Department signed with Cuban representatives a new trade agreement. This came under the Trade Agreements Act passed by Congress on June 12, 1934. In return for duty concessions made by Cuba on 426 items of American origin the United States grants tariff reductions on sugar, rum, tobacco and some seasonal reductions relating to vegetables and fresh fruits.

Attack on U. S. Ambassador.—On May 27 press dispatches from Cuba indicated that an attempt had been made on the life of United States Ambassador Caffery. The Ambassador, it seems, had been severly criticized by certain student agitators because of his statements regarding the activities of Communists.

NICARAGUA

Assassination of Sandino.—The assassination of General Sandino on Feb. 21 brought to mind again the attempt of the American Government in cooperation with the Gard of Nicaragua, extending over a period of 5½ years, to capture this so-called rebel. This futile effort cost the American Marine Corps 130 lives, the Treasury of the United States several millions of dollars, and the loss of friendship in many Latin-American quarters.

Move to Abrogate Bryan-Chamarro Treaty.—Press dispatches in August indicated that the Nicaraguan Congress was fostering a movement to abrogate the Bryan-Chamarro Treaty of 1916 between the United States and Nicaragua. It will be recalled that this treaty provided for the construction of an inter-oceanic canal through Nicaragua. Nicaragua and other Latin-American nations contend that the existence of this treaty is out of keeping with the Roosevelt ''good neighbor'' policy. The Central-American states, particularly, hold that the abrogation of this treaty is a necessary preliminary step to Central American Union.

Trade Agreements.—In the last part of August and early September the State Department announced that trade agreements had been negotiated with Nicaragua. This was in line with the general American policy to promote trade relations with Latin-America.

HAITI

Visit of President Vincent to U. S.—On March 26, a Haitian official delegation, with President Stenio Vincent at its head, arrived in New York. The delegation came to confer with President Roosevelt on problems connected with the withdrawal of American Marines to take place in October, 1934, and the Haitian debt of $11,000,000 to American bondholders. On April 19, President Vincent held a conference with President Roosevelt in Washington. The two executives discussed the problems growing out of the contemplated withdrawal of American troops, and future commercial relations.

End of Military Intervention.—On Aug. 15, American military intervention came to an end when the Marine brigade in Haiti embarked for home after 19 years of occupation. While many Haitians were glad to see the Marines leave, yet there were some very constructive steps taken during American occupation. The Garde d'Haiti was at first officered by the United States Marines but these were gradually supplanted by Haitians. A well disciplined line force of 2,000 Haitians with some 200 Haitian officers was left behind.

Results of American Occupation.—Under American auspices roads were built, mountain trails improved, and bridges and canals were constructed. Telephone and telegraph systems are being extended, while swamp lands are being drained and irrigation projects undertaken. American Navy doctors left a splendid memorial in the General Hospital in Port au Prince and in the broad program of sanitation. Agriculture has been improved and 19 years of American supervision has brought order into Haiti's financial affairs. In this period the public debt was reduced from $30,720,000 to $12,260,000. The United States will continue the customs receivership until the final payments of the loans to the National City Bank of New York. So the United States leaves behind American trained teachers, agricultural specialists, technicians, guards, engineers, nurses and doctors. These are the backbone of the new Haiti.

Trade Agreement.—In September the United States Department of State announced that a trade agreement had been negotiated with Haiti.

PART THREE
GOVERNMENTAL FUNCTIONS

DIVISION VII
PUBLIC FINANCE AND TAXATION

NATIONAL EXPENDITURES AND REVENUE

By Merlin H. Hunter

Professor, University of Illinois

GENERAL

Federal finances continue to be colored by the tremendous expenditures for recovery and for emergency relief. The Director of the Bureau of the Budget has made an attempt to separate the Federal expenditures into two classes — the ordinary expenditures and those of an emergency nature. The expenditures have mounted rapidly until now they are in the billions of dollars. To most individuals any concept of a "billion" is very vague. Some one has calculated that only slightly more than a billion minutes have passed since the birth of Christ. To get a little clearer conception of just what a billion dollars expenditure or indebtedness means to the people of the United States, each billion dollar item may be calculated to mean a per capita amount of about 80 dollars for each man, woman and child in the country.

PAST EXPENDITURES AND INDEBTEDNESS

The sums of money at present being borrowed and spent by the Federal Government are represented by many speakers and writers as enormous and unprecedented. Many have little knowledge of past operations of the Federal Government, and it may help to grasp the significance of present finances to note the expenditures, revenues and indebtedness of some past years. Those of the war emergency will be most significant.

GOVERNMENT FINANCES FOR SELECTED YEARS

Year	Expenditure	Revenue
1917........	$1,978,000,000	$1,449,000,000
1918........	12,698,000,000	3,960,000,000
1919........	18,523,000,000	5,427,000,000
1920........	6,482,000,000	7,127,000,000
1924........	3,507,000,000	4.585,000,000
1930........	3,994,000,000	4,883,000,000

It will be noted that in some of these years, expenditures were greatly in excess of those at present and that the current revenues fell far short of providing the necessary funds. Resort to borrowing was the inevitable result. The total indebtedness mounted to unprecedented heights. From 1882 to 1916 the total indebtedness of the Federal Government did not vary far from $1,000,000,000. In 1918 it had grown to $12,244,000,000; in 1919 it reached the enormous sum of $25,482,000,000. After this a policy of debt reduction was followed until by 1930 the indebtedness had been reduced to about $16,801,000,000.

VII. PUBLIC FINANCE AND TAXATION

PRESENT EXPENDITURES AND REVENUES

With the brief background outlined above, present expenditures, revenues and indebtedness may have a little more significance. To get an idea of these we can do no better than to turn to President Roosevelt's budgetary message of Jan. 3, 1934. He summarizes the financial condition as follows:

SUMMARY OF GOVERNMENT FINANCES

	Estimated Fiscal Year		
	1935	1934	1933
Receipts during the year	$3,974,665,000	$3,259,939,000	$2,079,697,000
General expenditures	3,763,276,000	3,533,692,000	3,865,915,000
Emergency expenditures	723,287,000	6,357,487,000	1,277,038,000
Total expenditures	4,486,563,000	9,891,179,000	5,142,953,000
Deficit	511,898,000	6,631,240,000	3,063,256,000
Gross public debt at end of year	28,664,492,000	28,679,970,000	22,538,673,000
Net increase in public debt during year	15,478,000	6,141,297,000	3,051,670,000

This table gives some indication of the magnitude of expenditures for the current fiscal year as well as those for the year following. The division into ''general'' and ''emergency'' must, of necessity, be influenced to some extent by personal opinion. Had the responsibility for making such a classification been placed elsewhere, the amounts assigned to each class might have been very different. The amounts designated as emergency expenditures for some of the more important items for the years 1934 and 1935 are as follows:

GOVERNMENT EMERGENCY EXPENDITURES

	1934	1935
Emergency Conservation	$341,705,600	$ 65,190,000
Agricultural Marketing Fund	60,000,000	....
Farm Credit Corporation	40,000,000	....
Civil Works Administration	400,000,000	....
Public Works Administration	9,812,000	30,000,000
Public Bodies	203,174,000	182,152,000
Loans to Railroads	83,600,000	93,208,000
Other Public Works	250,400,000	141,900,000
Tennessee Valley	19,000,000	31,000,000
Forest Service	9,800,000	6,182,700
Public Roads	306,732,000	227,500,000
Agricultural Adjustment Administration	3,250,000	5,000,000
Forest Roads, Trails and Highways	20,230,600	15,578,100
Bureau of Lighthouses	2,153,000	2,935,000
Division of Investigation, Soil Erosion Prevention, Subsistence Homesteads	11,259,000	18,800,000
Irrigation and Drainage of Indian Lands	2,710,200	2,403,800
Indian Education	2,506,300	1,965,500
Indian Roads and Bridges	3,000,000	1,000,000
Boulder Cañon Project	5,450,000	24,000,000
All American Canal	570,000	5,430,000
Office of National Parks	8,436,600	11,450,000
Increase in Vessels (Navy)	15,000,000	29,000,000
Total Navy	56,063,000	144,669,400
Coast Guard	13,693,400	11,139,900
Supervising Architect of Federal Buildings	10,000,000	22,000,000
Rivers and Harbors	131,934,000	75,552,000
Total, War Department	196,291,900	102,174,600

From this incomplete list, as well as from the estimate of total emergency expenditures, it is seen that by far the greater proportion is expected to be made this year. For some individual items, however, the expenditures for 1935 are expected to be considerably in excess of those of the current year.

THE RECONSTRUCTION FINANCE CORPORATION

The Reconstruction Finance Corporation has been the agency of primary importance in prosecuting the recovery program. For the current fiscal year the estimated expenditures for the Corporation are $4,693,000,000. Repayments, however, are continually being made to the Corporation, and if the sum of $723,000,000 is repaid, as has been estimated, the net expenditure will be but $3,970,000,000.

FEDERAL INDEBTEDNESS

The table (p. 172) indicates an estimated increase of $8,000,000,000 in the indebtedness of the Federal Government for the current year. On Sept. 30, 1934 the total net debt had reached the sum of almost $25,000,000,000. The following table gives some idea of its composition.

THE PUBLIC DEBT

(Sept. 30, 1934)

Bonds	$ 842,005,150.00
Treasury Bonds	9,566,695,150.00
Treasury Notes	8,020,211,050.00
Certificates of Indebtedness	1,155,596,500.00
Treasury Bills (Maturity Value)	1,528,695,000.00
Total interest-bearing debt outstanding	26,626,131,850.00
Matured Debt on which Interest has Ceased	53,752,105.26
Debt Bearing No Interest	509,764,782.32
Total gross debt	27,189,648,737.58
Gross debt less net balance in general fund	24,996,531,298.96

This, however, does not represent the complete activity of borrowing in which the government will have to engage. Within the calendar year 1934 there falls due or has been called for payment, obligations which total the sum of $5,659,454,000. While such refunding operations do not increase the gross debt, they do mean that a market must be found in which to dispose of the different issues of obligations.

This staggering total of Federal indebtedness, however, is not an accurate statement of actual conditions. An individual may have great debt obligations, but if, on the other hand, he holds obligations of others, the status of his net indebtedness may be very different from that of the gross figure. So it is with the indebtedness of the Federal Government. On June 30, 1933 the total of obligations owned by the Federal Government was $14,776,525,000. Just what part of this must eventually be written off as ''bad debts'' remains to be seen. The list of these obligations as of the above date follows:

OBLIGATIONS TO THE UNITED STATES

Foreign Obligations:		
Funded Bonds:		
Austria	$ 23,752,217.00	
Belgium	400,680,000.00	
Estonia	16,466,012.87	
Finland	8,484,000.00	
France	3,863,650,000.00	
Great Britain	4,368,000,000.00	
Greece	31,516,000.00	
Hungary	1,908,560.00	
Italy	2,004,900,000.00	
Latvia	6,879,464.20	
Lithuania	6,197,682.00	
Poland	206,057,000 00	
Rumania	63,860,560.43	
Serbs, Croats, and Slovenes	61,625,000.00	
		$11,063,976,496.50
Unfunded Obligations		249,703,791.10
For Surplus War Supplies Sold on Credit by Secretary of War under Authority of Acts of Congress Approved July 9, 1918, and June 5, 1920		21,300,283.57

For Relief Supplies Sold on Credit by American Relief Administration under Authority of Act of Congress Approved February 25, 1919		18,921,966.41
For Relief Supplies Sold on Credit by United States Grain Corporation under Authority of Act of Congress Approved March 30, 1920		6,804,743.59
German Bonds		654,354,250.00
Capital Stock of War Emergency Corporations		30,176,395.17
Capital Stock of the United States Housing Corporation, issued	$70,000,000.00	
Cash deposits covered into Treasury under Act approved July 11, 1919	43,745,526.04	
		26,254,473.96
Capital Stock of the United States Spruce Production Corporation		99,993.00
Reconstruction Finance Corporation		3,561,585,052.93
Equipment Trust 6% Gold Notes		33,600.00
Obligations of Carriers Acquired Pursuant to Section 207 of the Transportation Act		5,219,500.00
Obligations of Carriers Acquired Pursuant to Section 210 of the Transportation Act		32,682,548.44
Obligations Acquired by the Federal Emergency Administration of Public Works		118,042,243.91
Capital Stock of the Panama Railroad Co		7,000,000.00
Federal Farm Mortgage 2% Bonds of the Federal Farm Mortgage Corporation Act		35,000,000.00
Capital Stock of the Inland Waterways Corporation		12,000,000.00
Capital Stock of Federal Land Banks, Act of Jan. 23, 1932		123,019,675.00
Capital Stock Federal Savings & Loan Association		420,300.00
Capital Stock Federal Deposit Insurance Corporation		150,000,000.00
Subscriptions to Paid-in-Surplus of Federal Land Banks amended by the Emergency Farm Mortgage Act of 1933, approved May 12, 1933		33,085,092.80
Capital Stock of Federal Home Loan Banks, Act of July 22, 1932		80,945,700.00
Capital Stock of the Home Owners' Loan Corporation		114,000,000.00
Capital Stock of Federal Intermediate Credit Banks "Agricultural Credits Act of 1923," March 4, 1923		60,000,000.00
Capital Stock Acquired under the Provisions of Section 33 of the Farm Credit Act of 1933		50,000,000.00
Capital Stock Acquired under the Provisions of Section 40 of the Farm Credit Act of 1933		60,000,000.00
Notes Received by the Federal Farm Credit Administration Evidencing outstanding advances made from the revolving fund created by the Agricultural Marketing Act		150,186,080.50
Securities Received by the Secretary of War on Account of Sales of Surplus War Supplies		828,000.00
Securities Received by the Secretary of the Navy on Account of Sales of Surplus property		4,909,988.20
Securities Received by the United States Shipping Board on Account of Sales of Ships, etc		144,433,328.77
Grand total		$16,814,983,503.85

THE PROBLEM OF REVENUE

To secure funds to meet expenditures such as those of the Federal Government is a real problem. Taxation and borrowing are the two available methods, but the reliance which can be placed upon each may vary greatly under different conditions. During the emergency of the World War both personal and corporate incomes were increasing rapidly and an increase in rates and a lowering of exemptions resulted in a marked increase in receipts. Thus of the total receipts of $5,427,000,000 in 1919, $3,019,000,000 came from income and profits taxes while in 1920, with total receipts of $7,127,000,000, $3,945,000,000 came from these sources.

At present, however, the economic conditions are vastly different. Incomes of both individuals and corporations have diminished to such an extent that they cannot be relied upon as extensive producers of revenue. To receive any considerable amount from taxation, therefore, the government has had to turn to bases other than income. The extent to which it has done this, together with the importance of the receipts from the different items is indicated by the table (page 175).

NATIONAL EXPENDITURES AND REVENUE

COMPARATIVE STATEMENT OF INTERNAL REVENUE COLLECTIONS FOR SEPTEMBER

Source of Revenue	1934	1933
Income	$171,176,917.89	$134,342,911.85
Excess profits	1,182,938.82	....
Capital stock	49,009,102.42	53,617,188.10
Estate	10,095,621.86	6,624,081.13
Gift	67,142.91	9,091.20
Distilled spirits (domestic), excise tax	11,608,865.04	881,839.90
Distilled spirits (imported), excise tax	1,065,768.29	208.24
Distilled spirits, rectification tax	473,150.75	316.62
Distilled spirits and wines, floor tax	158,214.23	....
Bottle, container and case stamps	490,409.66	8,373.20
Wines, cordials, etc. (domestic), excise taxes	445,716.50	40,110.32
Wines, cordials, etc. (imported), excise taxes	(-13,746.20)*	....
Grape brandy for fortifying wines	133,473.76	19,558.32
Special taxes, rectifiers, stills, dealers in spirits	236,092.97	173,493.03
Fermented malt liquors (beer, ale, etc.)	17,209,042.83	13,297,042.14
Special taxes, Brewers and dealers in malt liquor	190,618.92	438,780.97
Cigars	972,024.37	1,109,307.07
Cigarettes	30,884,779.93	28,585,235.59
Snuff	503,007.49	577,854.20
Tobacco, chewing and smoking	4,399,263.25	4,666,115.95
Cigarette papers and tubes	92,722.56	68,985.76
Miscellaneous, relating to tobacco	1,889.40	15.74
Bonds, issues of capital stock, conveyances, etc.	1,248,710.58	1,192,606.58
Transfers of capital stock	943,310.25	2,173,211.53
Future delivery	545,716.47	769,653.82
Silver bullion sales	70,869.99	....
Playing Cards	439,426.80	357,806.68
Brewer's wort	(-239,783.73)	7,791.81
Malt	102,342.23	498,899.21
Grape concentrates	.15	268.93
Matches	331,888.42	374,919.91
Lubricating oils	1,920,483.13	2,127,322.47
Gasoline	13,282,555.81	18,528,448.91
Transportation of oil by pipe line	1,060,016.13	915,825.79
Crude petroleum processed, etc.	156,067.32	....
Toilet preparations, etc. at 5 per cent	308,425.55	383,932.30
Toilet preparations, etc., at 10 per cent	507,658.83	640,532.56
Coconut, etc., oils processed	1,818,191.84	....
Furs	184,842.91	1,008,939.32
Jewelry, etc.	92,156.19	292,693.00
Automobile trucks	424,700.18	514,899.85
Automobiles and motor cycles	2,776,664.62	2,490,024.69
Auto. parts and accessories	494,783.70	431,725.63
Tires	1,910,438.54	1,763,300.39
Inner tubes	453,675.53	363,284.78
Radios and phonograph records	305,291.91	147,930.49
Mechanical refrigerators	477,030.66	394,596.33
Sporting goods	296,513.61	202,866.25
Cameras and lenses	27,934.02	30,972.53
Firearms and shells	150,056.96	375,554.68
Pistols and revolvers	1,747.16	2,274.31
National Firearms Act	1,853.52	....
Chewing gum	66,584.97	38,279.80
Electrical energy	2,406,700.41	2,304,894.19
Telephone, telegraph, radio and cable	1,358,339.26	853,428.58
Safe deposit boxes	200,969.25	190,975.05
Checks, etc.	3,102,502.39	3,090,070.69
Process, etc., butter, mixed flour, filled cheese	1,160.20	563.75
Oleomargarine, excise taxes	75,297.48	61,554.90
Oleomargarine, special taxes	33,552.03	26,436.69
Narcotics, including special taxes	18,709.96	15,557.44
Admissions	1,202,599.74	1,283,383.99
Club dues	393,503.04	438,941.48
Repealed taxes (dividends, boats, candy, soft drinks)	94,104.81	4,363,802.08
Prohibition and other miscellaneous sources	15,198.15	23,449.40
Total income and miscellaneous internal revenue	$339,445,808.52	$293,142,130.12

VII. PUBLIC FINANCE AND TAXATION

AGRICULTURAL ADJUSTMENT TAXES

As a part of the recovery program Federal aid has been extended to many types of agricultural activity. To provide funds for this aid, a number of special taxes have been levied. The extent of such taxes, together with the amount collected, is shown in the following table:

COLLECTIONS FROM AGRICULTURAL ADJUSTMENT TAXES, COTTON GINNING TAX AND TOBACCO SALE TAX

Commodity	Month of September	Total from July 1, 1934 (fiscal year 1935)
Wheat (tax effective July 9, 1933):		
Processing tax	$9,024,305.83	$28,746,753.14
Import compensating taxes	1,724.29	5,712.34
Floor taxes	29,031.60	96,677.86
Total, wheat	$9,055,061.72	$28.849,143.34
Cotton (tax effective August 1, 1933):		
Processing tax	$7,285,187.69	$25,103,699.69
Import compensating taxes	108,836.58	304,645.94
Floor taxes	101,359.81	413,976.65
Total, cotton	$7,495,384.08	$25,822,322.28
Tobacco (tax effective October 1, 1933):		
Processing tax	$2,455,622.08	$7,059,358.67
Import compensating taxes	11,819.74	87,086.60
Floor taxes	3,034.95	9,847.99
Total, tobacco	$2,470,476.77	$7,156,293.26
Field corn (tax effective November 5, 1933):		
Processing tax	$635,266.34	$1,917,623.11
Import compensating taxes	3,058.62	6,307.54
Floor taxes	3,441.81	8,728.97
Total, corn	$641,766.77	$1,932,659.62
Hogs (tax effective November 5, 1933):		
Processing tax	$16,514,453.09	$50,792,401.92
Import compensating taxes	5,584.94	17,933.96
Floor taxes	1,137.17	10,787.44
Total, hogs	$16,521,175.20	$50,821,123.32
Paper and Jute (tax effective December 1, 1933):		
Processing taxes	$239,810.31	$1,294,727.22
Import compensating taxes	16,027.39	96,314.53
Floor taxes	7,178.97	82,899.55
Total, paper and jute	$263,016.67	$1,473,941.30
Sugar cane and sugar beets (tax effective June 8, 1934):		
Processing taxes	$3,690.20	$12,050.76
Import compensating taxes	919,171.51	1,236,847.09
Floor tax, other than retail	2,700,738.86	5,495,266.35
Floor tax, retail	140,024.54	297,360.16
Total, sugar	$3,763,625.11	$7,041,524.36
Cotton ginning tax	$1,590.81	$1,595.59
Tobacco sale tax	$81,216.98	$114,654.16
Total allocated collections	$40,293,314.11	$123,213,257.23
Undistributed processing, etc., collections	(−1,239.56)	730,286.62
Total	$40,292,074.55	$123,943,543.85

THE REVENUE ACT OF 1934

The Revenue Act of 1934 made a number of changes in existing provisions. Some of the provisions of the law sought to clarify existing administrative difficulties, others were enacted with the hope of increasing receipts, while others transferred to this act provisions which were formerely a part of the National Industrial Recovery Act. Some of the more important changes may be noted.

Income tax rates have been changed so that a single normal tax of 4 per cent is now levied upon all net income instead of 4 per cent on the first $4,000 and 8 per cent on the remainder. A credit of 10 per cent is also now allowed from the normal tax levied upon earned incomes. Any net income up to $3,000 is considered earned, and this may be as large as $14,000 depending upon the nature of the income. Surtax rates, on the other hand, have been increased. These rates now begin at 4 per cent on incomes of $4,000 and not in excess of $6,000. The rate increases progressively through twenty-nine brackets until a surtax of 59 per cent is levied upon the portion of the net income above $1,000,000.

Many changes have been made in the tax provisions applicable to corporations. The rate of tax of 13¾ per cent upon net income remains although the right to file consolidated returns has been greatly limited. The penalty for an excessive accumulation of surplus has also been reduced from 50 per cent to 25 per cent of the earnings in addition to dividends not in excess of $100,000 and 35 per cent of such excess. In addition, a tax of one dollar is levied against each $1,000 of the declared value of the capital stock. The excess profits tax of 5 per cent of the amount of net income in excess of 12½ per cent of the declared value of the capital stock has been carried from the National Industrial Recovery Act and placed in the Revenue Act.

The estate tax has been amended so that a rate of 60 per cent now applies to net estates in excess of $10,000,000 above the exemption which is still $50,000. Gift tax rates have been increased so as to continue to be about ¾ of the estate tax rates.

Some of the more important miscellaneous provisions are that the tax on bank checks terminates on Jan. 1, 1935; the excise tax on candy has been repealed; a tax of 1/10 of a cent per barrel is levied upon crude petroleum sold by the producer; the excise tax on furs does not apply to sales of less than $75 nor upon jewelry sales of less than $25; the tax upon soft drinks has been repealed, and the tax upon the sale of produce for future delivery has been reduced from 5 cents per $100 to 3 cents per $100.

SOME PROBLEMS OF FEDERAL FINANCES

Granted the wisdom of Federal expenditures, the fact remains that the raising of the necessary revenue presents a real problem. Where a choice is possible, it may be important to choose between taxation or borrowing, or between different forms of taxation. If a government is hard pressed, any source which will produce revenue may be justified. In choosing between taxation and borrowing, the nature of the emergency may have an influence. During the World War borrowing was condemned since it resulted in inflation. Since higher prices are one of the aims of the recovery program, to borrow might seem more logical than to tax. Borrowing, moreover, is more likely to call forth funds which would not otherwise have been spent by the individual and thereby make expenditures in addition to those which would have been made by individuals rather than a mere substitution for them.

In the payment of debts care must be used in the formulation of the tax system so as not to place the burden of repayment unjustly upon particular classes. Even though the government may borrow heavily at present, this resolves itself, eventually, into a problem of taxation.

THE BURDEN OF THE FINANCES

Many measures have been given to show the burden of expenditures or of indebtedness. The absolute sums appear large as do also per capita figures. The percentage of social income or of national wealth is also used. While each of these may serve a purpose, of more importance is the percentage of the per capita social income which is diverted to governmental purposes and from what classes of society this is taken. While on all methods of measurement the burden of Federal finances may seem large, it may be of some consolation to know that on the same measurements the burden in many other countries is even greater.

THE NATIONAL BUDGET

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PRESIDENT ROOSEVELT'S BUDGET FOR 1935

Summary of 1934 Requirements.—President Roosevelt transmitted the budget for 1935 (*i.e.* for the fiscal year begun July 1, 1934) to Congress on Jan. 3, 1934. In his budget message, he summarized the financial requirements of the government for the fiscal year 1934, then about half completed. He indicated that the ordinary expenditures for this year would amount to $3,534,000,000 and the emergency expenditures to $6,357,000,000, making a total of $9,891,000,000. Incidentally, this total figure proved to be over $2,000,000,000 above the actual expenditures, due largely to the fact that the emergency spending program was not speeded up as anticipated in the estimates. However, these estimates caused the President to include in his budget message $1,166,000,000 for emergency purposes during the remainder of the fiscal year 1934, which had not been included in the expenditure requirements set forth in the budget proper, thus bringing the grand total for the year up to $11,057,000,000. This added figure was inserted at the last moment, without being worked into the general financial plan.

Estimates for 1935.—For the fiscal year 1935, President Roosevelt estimated in the budget message that the ordinary expenditures would amount to $3,763,276,000, while the emergency expenditures would reach $2,723,286,500. The latter figure was exactly $2,000,000,000 more than the amount included in the budget proper. The President added this time an amount which was roughly equivalent to 30 per cent of the entire expenditure estimate carried in the main body of the budget. In justification of this method of budgeting, he said: "Further needs of the country prohibit the abrupt termination of the Recovery Program. No person can on this date definitely predict the total amount that will be needed, nor the itemizing of such amount. It is my best judgment at this time that a total appropriation of not to exceed 2 billion dollars will, with the expenditures still to be made next year out of existing appropriations, be sufficient." This large sum was therefore tucked away in a paragraph of the budget message, without any adequate explanation of how it was to be expended, thus constituting in effect a veritable hidden budget.

Total National Debt.—The total estimated expenditure requirements for the fiscal year 1935, according to the President's budget message, amounted to $6,486,562,500, thus producing a deficit over and above the anticipated revenues and receipts from ordinary sources of $2,500,000,000. The President, however, explained that the debt increase caused by this deficit "would be partially offset by loans made against collateral and assets pledged." The total national debt at the end of the fiscal year 1935, he estimated, would amount approximately to $31,834,000,000. He said that "the Government should seek to hold the total debt within this amount," adding that the Government should have a balanced budget by the end of the fiscal year 1936 and "from that time on seek a continuing reduction of the national debt."

Taxation and Postal Rate.—The President's budget message contained very little on the subject of taxes. The proposed liquor taxes and some suggested changes in the income tax law were mentioned. A rough estimate of the yields in these cases was included. The President recommended the continuation of the 3-cent postal rate for non-local letters.

CONGRESSIONAL ACTION ON THE BUDGET

President's Address.—When Congress met on Jan. 3, 1934—its first meeting on the date set by the 20th Amendment—the main issue before it was economic recovery. At the same time, the congressmen could not refrain from looking rather wistfully toward the November election. Both houses had overwhelming Democratic majorities. But even so, President Roosevelt chose to approach Congress in a way that was calculated to encourage cooperation. At the opening of the session, he addressed both Houses in an intimate manner. "Out of these friendly contacts," he said, "we are fortunately building a strong and permanent tie between the legislative and the executive branches of the government. The letter of the Constitution wisely declared a separation, but the impulse of common purpose declares a union."

Economy Measures.—The congressional cooperation which President Roosevelt had evidently anticipated did not, however, turn out so well on the budget. While he got ready support from Congress on his appropriation measures granting aid and relief to various groups and sections, he did not fare very well with his economy measures. The independent offices appropriation bill, for example, carried revised provisions of the so-called "Economy Act of 1933," which were in keeping with the President's recommendations on salary restoration to Federal employees. These provisions permitted a return on July 1, 1934, of 5 per cent of the 15 per cent reduction. By strict enforcement of a special rule of procedure, this bill was put through the House without serious change. But in the Senate several amendments were made to the bill, principally with respect to salary restoration and veterans' relief. After several days of parliamentary maneuvering interspersed by heated debates, most of these amendments were accepted by the House. When the bill reached the President on March 26, he promptly vetoed it and at the same time took Congress to task for its action in a veto message. He pointed out that the bill increased the pay of government employees by $125,000,000 over his estimates, due to a restoration of 5 per cent made retroactive to Feb. 1, 1934; also that it increased the veterans' requirements by over $100,000,000, and at the same time sought to make service-connected disability a matter of law rather than of fact. Congress, smarting under the spanking thus administered to it by the President, proceeded to override his veto by a vote of 310 to 72 in the House and 63 to 27 in the Senate.

Appropriation Bills.—The second session of the 73d Congress acted on the theory that it was a spending rather than an economy body. But even so, it did not speed up its consideration of the appropriation bills as the President had hoped at the beginning of the session. The middle of April came before the House had passed the nine regular appropriation bills, and another month elapsed before the Senate had acted on all these bills. Five of these bills were signed by the President during March, two during April, one in May, and one in June. The total appropriations carried in the regular appropriation bills amounted to $2,252,651,561. Before the end of June a deficiency-emergency appropriation bill was passed and approved with a total of $1,823,912,698. In addition to these bills, more than two score other acts carried appropriations and authorizations to spend, amounting to $3,281,000,000. Two billion dollars of this amount, however, was set up in the exchange stabilization fund. Counting the permanent and indefinite appropriations, the aggregate amount authorized by the second session of the 73d Congress totaled over $9,500,000,000. These appropriations are summarized in the accompanying table.

SUMMARY OF APPROPRIATIONS MADE BY THE SECOND SESSION OF THE SEVENTY-THIRD CONGRESS

1. Regular Annual Appropriations, Fiscal Year 1935:	
Agriculture Department and Farm Credit Administration	$62,621,673
District of Columbia	35,411,178
Independent Offices	588,574,714
Interior Department	31,474,319
Legislative Branch	25,075,995
Navy Department	284,658,799
State Department	13,885,618
Justice and Courts	28,700,778
Commerce Department	32,267,321
Labor Department	14,030,805
Treasury Department	150,092,430
Post Office Department	669,628,940
War Department	316,228,991
Total regular annual	$2,252,651,561
2. Deficiency and Emergency Appropriations:	
Deficiency Appropriations, 1934	$15,642,698
Emergency Appropriations, 1935	1,808,270,000
Total deficiency and emergency	$1,823,912,698
3. Miscellaneous Appropriations, Fiscal Years 1934 and 1935:	
Federal Emergency Relief Administration and Civil Works Program	$950,000,000
Exchange Stabilization Fund (payable from receipts created by the increment resulting from the reduction in weight of the gold dollar), sec. 7, Gold Reserve Act, 1934	2,000,000,000
Direct loans for industrial purposes by Federal Reserve banks, etc. (payable from same receipts as exchange stabilization fund)	139,299,557
Crop production loans (FCA)	40,000,000
Cotton, cattle and dairy industries (AAA)	150,000,000
Control of the chinch bug (DA)	1,000,000
All other public acts and resolutions	705,417
Private relief and other private acts	907,000
Total miscellaneous appropriations	$3,281,911,974
Total regular annual, def. and misc	$7,358,476,233
4. Permanents and Indefinites, Fiscal Year 1935:	
Interest on the public debt	$824,349,000
Sinking fund and other debt retirements	525,763,850
Advances to Agricultural Adjustment Admin.	831,022,428
All other permanents and indefinites	127,247,374
Total permanents and indefinites	$2,308,382,652
Grand total appropriations	$9,666,858,885
Deduct amounts for exchange stabilization fund ($2,000,000,000), and payment to surplus of Federal Reserve banks ($139,299,557), both payable from receipts created by the increment resulting from the reduction in the weight of the gold dollar	$2,139,299,557
Grand total, less deductions	$7,527,559,328

Additional Taxation.—The President did not make any detailed recommendations with reference to additional taxation. This matter was left entirely to Congress, thus disregarding the provisions of the Budget and Accounting Act of 1921. The House Committee on Ways and Means framed a general revenue bill which was calculated to raise $263,000,000. This bill passed the House in February. After considerable debate, it passed the Senate with some important amendments, and was approved by the President on May 10, under the title of the "Revenue Act of 1934."

Among the major changes in taxation provided by this act are an increase in the income tax on consolidated corporation returns from 14¾ to 15¾ per cent; a change in the special surtax on corporations improperly accumulating surplus for the purpose of tax avoidance, and a limitation of losses from sales or exchanges of capital assets to $2,000, plus the gains from such sales, for all corporations with a few exceptions. Taxes on capital stock and on excess profits of corporations are levied at the same rates as provided in the National Industrial Recovery Act, with some slight modifications. A decrease is made in the normal rate for individual incomes of from 4 and 8 per cent to 4 per cent, with certain adjustments in tax credits, but surtaxes are graduated from 4 per cent on net income in excess of $4,000 rather than $6,000. Taxable gains and losses are computed on the basis of percentages which vary according to the time the assets have been held. Increases are made in the graduated rates of additional tax on estates, with an exemption of $50,000. Changes are made in certain import, processing, and excise taxes. The taxes on soft drinks, candy, certain boats, and checks are repealed.

The other important Revenue Act passed by Congress was the "Liquor Taxing Act of 1934," approved Jan. 11, 1934. This Act repealed the Act of March 22, 1933, providing for the taxation of non-intoxicating beverages. It was estimated that the liquor taxing Act would yield revenue to the amount of $400,000,000; however, some doubt was expressed as to whether or not this estimate would be realized on account of the probable imposition of heavy state taxes and the continuation of extensive dry areas.

THE EXECUTION OF THE BUDGET

Financial Condition.—For the fiscal year ended June 30, 1934, the national government took in ordinary revenues and receipts amounting to $3,115,500,000 in round figures, or over $1,000,000,000 more than the yield of the previous fiscal year. The ordinary expenditures for 1934 amounted to $3,100,900,000, thus coming within the ordinary revenues and receipts for that year. But the emergency expenditures for recovery and relief purposes for 1934 reached the highest figure yet attained during the depression, namely $4,004,100,000. This amount was met entirely from borrowings. The total expenditures for 1934, therefore, reached in the aggregate $7,105,000,000. The deficit for the fiscal year was calculated at $3,989,000,000, or nearly $1,000,000,000 more than that of the fiscal year 1933. The actual increase in the public debt was put at $4,514,000,000, thus bringing the total gross debt up to $27,053,000,000.

By the close of the fiscal year 1934, $13,485,000,000 had been provided, either by direct appropriation or through the Reconstruction Finance Corporation, for recovery and relief purposes. The National Recovery Act carried an appropriation of $3,300,000,000; the Emergency Appropriation Act, 1935, totaled $1,426,000,000 and specific appropriations aggregated $2,802,000,000. The RFC provided the remaining $5,957,000,000. On June 30, 1934, $6,453,000,000 of the total moneys thus provided for recovery and relief had actually been expended, leaving a balance of $7,032,000,000. During the first quarter of the fiscal year 1935, this unexpended balance was being paid out at the rate of more than $250,000,000 a month.

Treasury Reorganization.—Within recent months several changes have been made in the Treasury Department. A Division of Disbursement was created by executive order, harged with the payment of all claims against the United States. It assumed the work of disbursing officers in the several departments and establishments, numbering more than

2,000. A Division of Procurement was also set up by executive order, intended to develop into a central purchasing agency for the government. The Bureau of Efficiency was abolished and its records transferred to the Bureau of the Budget. The Federal Coordinating Services was eliminated from the latter Bureau and discontinued. It had been in existence since 1921 as an adjunct of the budget work. A move was made in the direction of improving the accounting system in the Treasury Department. Certain accounts were set up in the Division of Bookkeeping and Warrants whereby obligations and encumbrances against appropriations might be ascertained. These accounts are now being kept current through frequent reports from the various spending departments and agencies.

Budgetary Control.—Realizing that effective budgetary control over the expenditures of the national government was almost wholly lacking, especially over the emergency expenditures, President Roosevelt issued an executive order (No. 6548) on Jan. 3, 1934, designed to establish such control. Immediately this order met with strong protests from Cabinet and Administrative officers, the principal objection being that the procedure it proposed would greatly hamper and delay expenditures being made for emergency purposes. On Jan. 6, the President issued a new order (No. 6550), revoking the other one and providing merely for weekly reports of all obligations incurred by the several spending departments and agencies. This was an ineffective compromise, as subsequent experience has shown. Budgetary control is still lacking, notably over the emergency organizations.

The Outlook for Balanced Budget. Although President Roosevelt proposed in January, 1934, that the national budget should be balanced by the end of the fiscal year 1936, and that the public debt should be held within $32,000,000,000, the prospect of a balanced budget at this time (November 24, 1934) seems much more remote than the date indicated by the President. This prospect has prompted certain citizen groups and organizations of the country to urge a balanced budget and to comment upon the effects which may follow if such step is not taken at an early date. The National Economy League, for example, addressed a petition to President Roosevelt on Nov. 19, 1934, outlining a plan looking toward immediate budgetary equilibrium. Among other things, it said: ''We hold that the prompt balancing of the national budget is of fundamental and controlling importance to any solid recovery from the depression. Until definite steps are taken, both through reduction of expenditures and new taxation, to make a balanced budget a reality, uncertainty and fear on the part of tens of millions of citizens will inevitably continue because of justified apprehension as to the safety and future value of their savings, wages and salaries.''

THE PUBLIC DEBT OF THE UNITED STATES

By D. W. Ellsworth

Editor, *The Annalist*

The gross debt, the balance in the general fund and the net debt of the United States at the end of each month from February, 1933, when the Roosevelt Administration took office, to October, 1934, are shown in the table (page 183):

THE PUBLIC DEBT OF THE UNITED STATES

(Millions of Dollars)

1933	Gross	General Fund Balance	Net
Feb 28..	$20,935	$ 221	$20,714
Mar 31..	21,362	493	20,869
Apr 29..	21,441	241	21,200
May 31..	21,853	364	21,489
June 30..	22,539	862	21,677
July 31..	22,610	834	21,776
Aug 31..	23,099	1,200	21,899
Sept 30..	23,051	1,146	21,905
Oct 31..	23,050	909	22,141
Nov 30..	23,534	1,107	22,427
Dec 30..	23,814	1,026	22,788
1934			
Jan 31..	25,068	1,537	23,531
Feb 28..	26,052	[1]4,902	21,150
Mar 31..	26,157	[1]4,818	21,339
Apr 30..	26,118	2,294	23,824
May 31..	26,155	2,022	24,133
June 30..	27,053	2,582	24,471
July 31..	27,189	2,472	24,717
Aug 31..	27,080	2,137	24,943
Sept 29..	27,190	2,193	24,997
Oct 31..	27,188	1,812	25,376

[1] Includes $1,800,000,000 "profit" on dollar devaluation, subsequently transferred to the exchange stabilization fund.

CHARACTER OF THE DEBT

Scarcely less significant than the absolute size of and the marked increase in the public debt, as shown by the above table, is its character, that is, the kinds of obligations by means of which the Treasury has financed the huge deficit of the fiscal year, 1934 and the first four months of the fiscal year, 1935. It has been said that in handling this problem the Treasury has pursued orthodox financial measures; it has, indeed, been asserted that some of its refunding operations have been comparable with those of other countries, especially Great Britain, in their efforts to reduce governmental expenditures by borrowing at lower interest rates. Nothing could be further from the truth. It is true that the United States Treasury has been able to borrow at extremely low rates and to prevent any marked increase in interest charges. In the fiscal year, 1934, for example, the interest charges on the outstanding debt amounted to only $756,617,127, as compared with interest charges of $689,365,106 on a considerably smaller volume of total outstanding indebtedness in the fiscal year 1933. But there the comparison ceases to be valid. What the British refunding process accomplished was, not only a reduction of about $200,000,000 in annual interest charges but also, a refunding of the equivalent of about $13,500,000 in outstanding obligations into long-term bonds. Thus so long as the British Parliament succeeds in balancing the budget no serious problem of Treasury financing is likely to arise in the near future.

DEBT CLASSIFICATION

In this country the situation is directly the opposite, as is evident from the following tables. From these tables it is clear that what the United States Treasury has done is to finance the huge government deficit of recent years largely through the issue of comparatively short-term obligations, the perpetual refunding of which will constitute a serious problem unless, and until, they are refunded into long-term bonds. This problem will, moreover, be intensified as long as the Government is unable or unwilling to meet its emergency expenditures by taxation instead of by borrowing. Thus in the year begun Nov. 25, 1934, the maturities which must be met on the basis of obligations outstanding on that date, are as shown (table, p. 185).

VII. PUBLIC FINANCE AND TAXATION

CLASSIFIED PUBLIC DEBT OF THE UNITED STATES

(Millions of Dollars)

	Bonds	Notes	Certificates	Bills	Int. Bear. Total	Matured Debt[1]	Other Non-Interest[2]	Gross Debt
1930								
June	12,112	2,390	1,264	156	15,922	32	232	16,185
1931								
June	13,531	621	1,924	445	16,520	52	230	16,801
1932								
January	14,307	795	1,839	575	17,515	41	259	17,816
February	14,307	795	2,200	518	17,820	40	265	18,126
March	14,307	796	2,568	520	18,190	47	270	18,507
April	14,307	796	2,562	622	18,287	40	269	18,597
May	14,277	1,041	2,792	619	18,729	40	268	19,037
June	14,250	1,465	2,831	616	19,161	60	266	19,487
July	14,257	1,487	2,907	647	19,297	50	264	19,612
August	14,257	2,197	2,656	648	19,758	47	262	20,067
September	14,257	3,031	2,385	623	20,296	55	260	20,611
October	14,257	3.539	2,044	645	20,485	55	273	20,813
November	14,257	3,539	2,038	643	20,476	52	278	20,806
December	14,257	3,539	2,038	643	20,476	52	278	20,806
1933								
January	14,230	3,298	2,285	641	20,454	55	293	20,802
February	14,230	3,576	2,138	641	20,584	59	291	20,935
March	14,230	3,575	2,369	817	20,992	82	289	21,362
April	14,230	3,575	2,363	918	21,087	68	286	21,441
May	14,223	4,148	2,119	979	21,469	71	314	21,853
June	14,223	4,780	2,200	954	22,158	66	315	22,539
July	14,239	4,800	2,246	954	22,240	55	316	22,610
August	15,074	5,152	1,543	953	22,723	64	312	23,099
September	15,074	5,151	1,495	952	22,672	70	309	23,051
October	15,074	5,150	1,493	952	22,669	72	309	23,050
November	15,569	5,149	1,492	952	23,161	69	304	23,534
December	15,569	5,125	1,754	1,003	23,450	65	299	23,814
1934								
January	15,597	5,627	2,280	1,214	24,717	54	297	25,068
February	15,579	6,472	2,278	1,379	25,707	48	297	26,052
March	15,579	6,925	1,816	1,378	25,698	60	400	26,158
April	15,717	6,689	1,814	1,378	25,599	53	467	26,118
May	15,695	6,678	1,812	1,404	25,588	59	509	26,155
June	16,510	6,932	1,635	1,404	26,480	54	518	27,053
July	16,516	6,951	1,683	1,454	26,605	57	527	27,189
August	16,513	6,921	1,682	1,379	26,495	66	519	27,080
September	15,922	8,020	1,156	1,529	26,626	54	510	27,190
October	15,808	8,027	1,154	1,654	26,643	48	497	27,188

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[1] On which interest has ceased.

[2] Consists mainly of U. S. notes, less gold reserve, and deposits for retirement of national bank and Federal Reserve Bank notes.

PERCENTAGE DISTRIBUTION OF THE GROSS PUBLIC DEBT OF THE UNITED STATES AT SIGNIFICANT DATES

	Bonds	Notes	Certificates	Bills	Int. Bear. Total	Matured Debt[1]	Other Non-Interest[2]
June 30, 1930	74.8	14.8	7.8	1.0	98.4	0.2	1.4
June 30, 1931	80.5	3.7	11.5	2.6	98.3	0.3	1.4
June 30, 1932	73.1	7.5	14.5	3.2	98.3	0.3	1.4
Feb 28, 1933	68.0	17.1	10.2	3.1	98.3	0.3	1.4
June 30, 1933	63.1	21.2	9.8	4.2	98.3	0.3	1.4
Dec 31, 1933	65.4	21.5	7.4	4.2	98.5	0.3	1.3
June 30, 1934	61.0	25.6	6.0	5.2	97.9	0.2	1.9
Oct 31, 1934	58.1	29.5	4.2	6.1	98.0	0.2	1.8

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[1] On which interest has ceased.

[2] Consists mainly of U. S. notes, less gold reserve, and deposits for retirement of national bank and Federal Reserve Bank notes.

GOVERNMENT OBLIGATIONS MATURING WITHIN 12 MONTHS FROM NOV. 25, 1934

Dec. 15, 2¼% certificates	$992,496,500
Dec. 19 to Mar. 13, Treasury bills	977,807,000
Mar. 15, 2½% notes	528,101,600
Mar. 20 to Apr. 10, Treasury bills	300,462,000
Apr. 15, 4th Liberty 4¼s, called	1,870,000,000
Apr. 17 to May 22, Treasury bills	450,653,000
June 15, 3% notes	416,602,800
Aug. 1, 1⅝% notes	353,865,000
Total	$5,889,987,900

A comparison of the figures given in the above table with those in the preceding tables shows that as of Nov. 25, 1934, slightly more than one-fifth of the total public debt would become due and payable within the following year. This is the result, of course, of the tendency of the present Administration to finance the public debt by means of short-term obligations such as Treasury bills, notes and certificates, to the exclusion of long-term obligations such as consols and Treasury bonds. In fairness, it should be noted, however, that in following this practice the Treasury has to some extent been guided by the popular demand for short-term issues for hoarding purposes. If it were not for this demand, which arises, however, from uncertainty on the part of investors over the Administration's monetary policy (fear of inflation) it is hardly likely that large issues of Treasury bills could have been sold at prices to yield small fractions of one per cent, nor that, at times during 1934, some of these short-term obligations sold in the open market at prices based on negative yields, indicating that investors were willing to pay a premium for the sake of safety of principal.

BANK SUBSCRIPTIONS TO THE PUBLIC DEBT

Another aspect of the public debt is not only its increase through the issue of short-term obligations, but also the character of the buyers of these issues. Under the present Administration the banking system of the country has partly lost its independence as a privately owned institution and steps have been taken which have virtually forced the banks to subscribe to these issues regardless of their wishes in the matter. The result has been that a larger proportion of the public debt of the United States is now lodged in the portfolios of the banks than ever before even remotely approached in this country, and indeed, for that matter, in the history of any other country save only those which have undergone destructive currency inflations such as Germany and France. On June 30, 1934, for example, all member banks of the Federal Reserve System held $9,137,000,000 in government securities, or 34 per cent of the entire public debt on that date. The amount of the public debt held by the banks has increased since that date and is steadily increasing. Figures are not available showing directly the amount of government securities held by all banks of the country, but it may be estimated that even as early as Dec. 30, 1933, the latest date for which there are figures covering total investments of all banks, including non-member and mutual savings banks, the total was about $11,500,000,000, or 48 per cent of the total public debt on that date. Since that time the proportion has probably increased. If to this total we add the amount held by the Federal Reserve Banks (nearly $2,500,000,000), it is clear that about half the public debt is being currently financed by bookkeeping transactions through the banking system. Under the present system that is virtually all the "sale" of government securities amounts to; *i.e.*, the banks receive pieces of paper in evidence of the obligations of the government and the Treasury receives a "government deposit" on the books of the banks. This "money" the government then proceeds to disburse through the checking process to the recipients of its various emergency relief funds.

METHODS OF GOVERNMENT FINANCING

A detailed account of the individual operations whereby this huge increase in the floating debt has occurred would throw a great deal more light not only on the kind of government debt we have today but also on the reason why, as shown (table, p. 184), the proportion of the total debt consisting of long-term bonds has dropped, under the New Deal, from 68 per cent to 58 per cent. Limitations of space prevent more than the barest outline.

At the outset, under the late Secretary of the Treasury Woodin, it was evidently the purpose of the Administration to follow traditional methods of financing. On Aug. 15, 1933, for example, the Treasury raised nearly $1,000,000,00 through an offering of $500,000,000 in 3¼ per cent eight-year Treasury bonds and $350,000,000 in two-year certificates. This issue was enthusiastically oversubscribed and created widespread confidence in the financial policy of the Administration. Again, on Oct. 15, the Treasury offered $500,000,000 in 10-12 year 4¼-3¼ per cent Treasury bonds and at the same time offered an unlimited amount of these bonds in exchange for 4th Liberty bonds, approximately $1,900,000,000 of which had been called for redemption, although holders of uncalled bonds were also permitted to exchange their holdings for the new issue.

Up to that time, except for a sharp but brief slump when the gold standard was definitely suspended in April, 1933, the market for government bonds had been rising steadily ever since the bank holiday. The new offering came, therefore, at a propitious time and was, indeed, hailed in financial circles as an answer to the demand for greenbacks for financing the budgetary deficit. The $500,000,000 cash offering was immediately oversubscribed. It was, therefore, with great consternation that holders of these new bonds and holders of 4th Liberty bonds listened to the President's radio speech of Oct. 22 in which the now famous gold-buying policy for the purpose of further depreciating the value of the dollar in foreign exchange markets was announced. Fearing inflation, people were reluctant to accept the exchange offer, and when, after a long delay, the books were finally closed on Dec. 2, it developed that only $899,899,200 in 4th Liberties had been turned in for the new bonds and no more than $25,000,000 in uncalled 4th Liberties. With the Administration embarking on a new and hitherto unheard-of deliberate attack on its own currency, it was no longer possible for the Treasury to finance the budgetary deficit by means of long-term issues. Throughout the fourth quarter of 1933 the government bond market was weak and investors in the Oct. 15 offering, who had paid 101½ for them, witnessed the spectacle of the market price rapidly sinking to around 98. No one was surprised, therefore, when the Dec. 15 financing consisted entirely of $950,000,000 in one-year 2¼ per cent certificates.

The year, 1934, opened with a fresh sinking spell in the market for government bonds, due to apprehension on the part of investors over what was eventually to be done with the American dollar. The revaluation of the dollar at approximately 59 per cent of its former gold value on Feb. 1 was followed, however, by a strong upward movement in the bond market which carried United States Government issues to new high records since the bank holiday. Despite this favorable development, the Treasury continued to finance its requirements through short-term issues ($500,000,000 in 13½-month notes and $500,000,000 in 7½-month certificates in January; and $400,000,000 in 22 month notes and $400,000,000 in 3 year notes in February, the remaining requirements being met by means of 91 and 182 day Treasury notes). The only refunding accomplished at this time was an offering at 10-12 year Treasury bonds in exchange for the approximately $1,000,000,000 in called 4th Liberties which investors had failed to turn in for the Oct. 15, 1933, offering; these bonds were also offered in exchange for $244,234,600 maturing Treasury notes.

In June, after one of the sharpest advances in government bond prices on record, the Treasury summoned enough courage to try a $300,000,000 issue of 12-14 year Treasury bonds.

This issue, together with a simultaneous issue of $500,000,000 of 5-year notes, was immediately oversubscribed; and in some quarters considerable gratification was expressed over the indication which this was said to afford as to the financial strength of the United States Government and its credit rating among investors. The following, from *The Commercial and Financial Chronicle*, is, however, a different view rather widely held at the time in the Wall Street financial district:

"The Federal Treasury has again during the past week undertaken to test its standing in the securities market, and has once more been able to express gratification at the response. The offerings of $300,000,000 in twelve-to-fourteen-year 3 per cent bonds and $500,000,000 in five-year 2⅛ per cent notes were, according to official information, subscribed for eight or nine times over, including of course all the padded subscriptions. Both issues promptly went to premiums in the over-the-counter market on a when-issued basis. Confidence in official circles that the Government can henceforth sell long-term obligations at very low rates of interest is said thus to have been greatly strengthened.

"The showing thus made is remarkable in more ways than one. Let us be perfectly candid with ourselves about this matter of the national credit. If we are willing to face the facts squarely we shall have, first of all, to remind ourselves that the market for Government obligations is thoroughly and systematically rigged for the purpose of keeping prices at high levels. Not only are all these issues now being offered partly or completely tax exempt, but they are likewise specially favored by admission to the Federal Reserve banks as collateral for loans.

"Nor is this all, or nearly all of the story. The present Administration has in its maze of corporations, funds and other accounts developed a mechanism admirably adapted to conceal support and boosting of the market for its obligations by the employment of methods repeatedly and uncompromisingly condemned in Washington during the investigations leading up to the Securities Act of 1933 and the National Securities Exchange Act, and in the provisions of these acts themselves from which all Government securities are completely exempted. Moreover, sundry Government policies, including those designed to regulate with a trend toward suppression of ordinary transactions in securities, have succeeded in absorbing the flow of new securities at the same time that excess reserves in the banks of the country have been enormously enlarged by Government action. Just what the ability of the Treasury would be to place its obligations with investors, or any one else, under normal conditions remains a subject about which we can only conjecture. What its credit standing would be if full and candid consideration were given to the true state of Government finances is equally open to question."

Nevertheless there was a feeling of moderate assurance after the successful completion of this financing and it is quite likely that the Treasury would have been able to go ahead with some important and much-needed refunding had it not been for still another occasion when the Government's general monetary policy created widespread fear on the part of investors in the soundness of the country's monetary system. This second occasion, following about one year after the beginning of the gold-buying policy, was the nationalization of silver and an active campaign on the part of the Treasury to carry out certain legislation with respect to adding silver to the country's metallic monetary reserves. Consequently, toward the end of August the bond market again turned sharply downward and this decline was turned into what at one time threatened to become a mild panic when, on Aug. 9, it became known that there had been a poor response to the Treasury's offering of $150.000,000 in Home Owners' Loan Corporation bonds, fully guaranteed by the Government. After a temporary rally, government bonds resumed the decline until, in the middle of September, half the sharp rise of the first half of the year had been canceled. Consequently in July and August the Treasury confined its financing to 182-day Treasury bills, aside from a few small offerings of Federal Farm Mortgage and Home Owners' Loan Corporation bonds, which were contingent liabilities of the Government.

In September, despite the unfavorable condition of the market, the Treasury again offered two issues of Treasury notes and one of 10-12 year bonds, but only in exchange for maturing obligations, including $1,250,000,000 in 4th Liberty bonds previously called for redemption Oct. 15.

Coincident with a moderate upturn in general business activity beginning in the second half of September, the market for government bonds improved and by the first week in December they had recovered half or slightly better of their July-to-September decline. The final major Treasury offering of the year, covering Dec. 15 financing, consequently, was favorably received and heavily oversubscribed. It consisted of $450,000,000 in 18-year Treasury bonds and $450,000,000 in 18-month notes. At this time the Treasury also offered to receive $992,496,500 in maturing 2¼ per cent certificates of indebtedness in exchange either for the new issue of 18-month notes or for another new issue of 4½-year notes.

CONCLUSIONS

Whatever one's views on the propriety of trying to "spend our way out of the depression," or of financing this huge spending program by borrowing from the future, it will be readily apparent from the foregoing summary that Treasury operations have become vastly more complicated under the New Deal than ever before in the history of the country, not excluding the war-time financing. In addition to the obligations described above, there were outstanding at the end of 1934 several billions in contingent liabilities of the Government incurred by various alphabetical "emergency" agencies established by the administration. Some economists have calculated that there is a theoretical limit on the amount to which the public debt can be increased under the present limitations on the banks with respect to reserve requirements against deposits, &c., and that that limit is approximately $50,000,000,000. If current proposals for the establishment of a central bank to take over complete control of the banking system are adopted, the presumption is that the rules of the monetary game as developed through decades of experience with sound and unsound banking will be abolished, and that, in its place, we shall have something that will be impossible to classify precisely in relation to past experience but which, it is presumed, will make the sky the theoretical limit to which the government debt can be increased.

That considerable apprehension on that point existed toward the end of 1934 was evident in current literature on the general subject of banking Some observers, on the contrary, appeared to feel entire confidence that no unorthodox nor radical proposals would be adopted. *The New York Times*, for example, in its issue of Dec. 7, 1934, made the following editorial comment on the results of the December financing:

"Various implications will be attached, both to the result of the new United States bond offer and to the general market's response. That the cash subscription means continued lowering of the interest charge on the public debt is manifest. This is a matter of high importance, in its bearing alike on future conversion of the existing higher-rate Government bonds and on the question of what burden will be imposed on public finances by the mounting principal of the debt. But it also, as regards the question of possible paper inflation, reflects very strikingly the attitude of experienced capitalists and of the general public. The question has not involved the prospect, in case of such inflation, of a fall in bond values from their present figures, but of such possible wild advance in prices of stocks, goods and living costs as should render the income from fixed-revenue securities altogether negligible to the holder. That consideration, which came to be of the greatest moment in Germany's currency extravaganza of 1923, has at times been made the text, by some observers, for judgment that all bonds are a dangerous investment, and that investors ought to put their money into stocks or, preferably, into commodities.

''The markets, as their action this week (Dec. 2-7) has shown, entertain no such view. Whereas transactions in stocks on the Exchange during the two past months were the smallest for the period since 1921, transactions in bonds have nearly matched the highest record, and for the eleven completed months have surpassed, with the sole exception of 1922, all previous precedent. This comparison proves nothing as to the subsequent action of stock values; that will depend on many circumstances. What it does prove unmistakably is the belief of the financial community that the danger of wholesale inflation of the currency has passed.

STATE FINANCES

By Merlin H. Hunter

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GENERAL

Those in charge of state finances continue to find themselves between two millstones—the demand for more revenue, especially to meet the needs of relief work, and the urge to reduce taxes, especially those upon property. The result has been a curtailment in many of the ordinary activities of the state so that more funds would be available for relief purposes; the attempt to secure a larger amount of funds from the Federal Government; the diversion of funds from a designated purpose to relief activities, such as gasoline tax money from highways to relief, and the enactment of many new tax laws. To what extent these enactments, presumably of an emergency nature, may become permanent could be but a matter of conjecture. To the extent that legislation has sought greater efficiency and economy in the administration of government, or in the elimination of obsolete political subdivisions, permanency is to be hoped for.

LEGISLATIVE SESSIONS

Ordinarily ''even'' years are considered those of little legislative procedure among the states since so few regular biennial sessions fall in these years. This, however, cannot be said for 1934 since about 30 states held special sessions of the general assembly, some of them more than one session. The problem of finances was uppermost in the discussion of most of the sessions. This had to do with appropriation, largely for relief, with diversion of funds, with the increase or extension of existing taxes and with the enactment of new revenue legislation either in the form of taxes or in the authorization of bond issues.

STATUS OF INDEBTEDNESS

The borrowing activities of governmental units have received considerable attention in recent years. We have become interested in the size, burden, defaults and possibility of payment. The table (page 190) gives information concerning the indebtedness of each of the forty-eight states.*

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* Compiled from statistics of the Bureau of the Census by the New York Trust Company and published in their bulletin, *The Index*, May, 1934.

VII. PUBLIC FINANCE AND TAXATION

STATE DEBT

(Totals expressed in thousands)

State	Gross debt less sinking fund assets			Per cent of increase 1922-1932	Per cent of increase 1912-1932	Ratio of net debt to estimated wealth 1930[3] (Per cent)
	1932	1922	1912			
Alabama	$82,342	$15,233	$13,132	440.6	527.0	2.21
Arizona	3,676	2,740	3,065	34.2	19.9	.02
Arkansas	164,424	2,722	1,236	5,940.6	13,202.9	4.54
California	145,723	85,267	10,223	70.9	1,325.4	.79
Colorado	6,747	12,019	3,174	[1]43.9	112.6	.25
Connecticut	108	6,088	7,111	[1]98.2	[1]98.5	.02
Delaware	2,072	5,834	763	[1]64.5	171.6	.77
Florida	391	869	619	[1]55.0	[1]36.8	.01
Georgia	12,488	5,419	6,934	130.4	80.1	.18
Idaho	6,961	7,673	2,143	[1]9.3	224.8	.24
Illinois	221,404	13,880	2,273	1,495.1	9,640.6	.89
Indiana	4,730	2,325	1,350	103.4	250.4	.03
Iowa	16,495	1,457	357	1,032.1	4,520.4	.13
Kansas	21,810	78	243	27,861.5	8,875.3	.36
Kentucky	16,224	7,745	4,441	109.5	265.3	.05
Louisiana	83,743	14,829	13,546	464.7	518.2	1.07
Maine	27,219	12,906	1,255	110.9	2,068.8	1.05
Maryland	31,198	22,129	7,334	41.0	325.4	.76
Massachusetts	62,856	76,996	79,551	[1]18.4	[1]21.0	.13
Michigan	60,582	50,934	7,089	18.9	754.6	.55
Minnesota	40,156	20,308	1,345	97.7	2,885.6	.05
Mississippi	36,320	14,864	4,461	144.3	714.2	1.41
Missouri	103,302	30,456	4,671	230.2	2,111.6	.89
Montana	9,316	7,579	1,513	22.9	515.7	.14
Nebraska	929	1,038	374	10.5	148.4	[4]
Nevada	1,370	1,751	608	[1]21.8	125.3	.17
New Hampshire	6,505	3,018	1,956	115.5	232.6	.36
New Jersey	62,198	16,355	642	280.3	9,588.2	.56
New Mexico	11,407	4,954	1,218	130.3	836.5	1.04
New York	463,068	186,542	86,205	148.2	437.2	.73
North Carolina	177,210	34,713	8,059	410.5	2,098.9	3.50
North Dakota	5,005	5,913	820	[1]15.4	510.4	.10
Ohio	7,696	30,143	5,142	[1]74.5	49.7	.05
Oklahoma	11,438	4,797	6,931	138.4	65.0	.05
Oregon	33,388	39,983	31	[1]16.5	107,603.2	.86
Pennsylvania	75,858	49,968	......	51.8	[2]	.28
Rhode Island	16,807	9,338	5,127	80.0	227.8	.87
South Carolina	77,984	8,729	6,190	793.4	1,159.8	2.28
South Dakota	15,510	15,431	370	.5	4,091.9	.34
Tennessee	94,032	19,142	11,812	391.2	696.1	1.93
Texas	10,317	6,145	4,656	67.9	121.6	.04
Utah	5,694	9,819	1,430	[1]42.0	298.2	.33
Vermont	9,545	2,112	570	351.9	1,574.6	1.12
Virginia	25,983	21,756	22,043	19.4	17.9	.52
Washington	8,257	13,191	1,556	[1]37.4	430.7	.22
West Virginia	86,394	24,181	......	257.3	[2]	1.51
Wisconsin	1,184	2,164	2,251	[1]45.3	[1]47.4	.02
Wyoming	5,568	4,011	122	38.8	4,463.0	.16

[1] Decrease. [2] Cannot be expressed. [3] Computed by National Industrial Conference Board. [4] Less than .005.

ANALYSIS OF STATE INDEBTEDNESS

A significant fact concerning the indebtedness of the states is that there has been practically no increase during the depression or at least practically no borrowing for relief purposes. Of the total indebtedness of $2,374,000,000 in 1932 about $1,227,000,000 had been borrowed for the construction of highways. Another interesting fact is that in only one state has there been any suggestion of default.

Figures are often quoted to indicate the burden of a debt. If some figures were taken from the above table they might indicate an alarming condition. Thus if one points out that the indebtedness of Oregon increased 107,602 per cent from 1912 to 1932 the first reaction is that the present burden must be overwhelming. Another factor often noted is that the debt has increased more rapidly than population, indicating thereby that the burden is heavier upon each individual.

As a matter of fact no absolute figure and many comparative figures indicate nothing as to the burden of a debt. If the social income remains the same, an increase in indebtedness will be less burdensome with a stationary population than with an increasing one. The per capita indebtedness will be greater, but each individual will have a greater amount out of which to pay it than if the income had to be divided among a larger number of persons. It is for this same reason that a comparison of the per capita indebtedness of one state with another really indicates nothing as to the burden.

For much the same reason to compare the percentage of wealth or income represented by the indebtedness is no indication of burden. To say that the indebtedness of some province of China represents but 1 per cent of the wealth while that of some American state is 10 per cent certainly does not indicate that the burden in the state is ten times as great. One must consider the number of people among whom this wealth is divided before an indication of the burden can be found. If there are 50 times as many people in the Chinese province as in the state it may well be that the burden here is much greater than in the state. As far as burden is concerned, then, neither per capita indebtedness nor percentage of wealth or income is important. The real importance lies in the number of people among whom this wealth or income must be divided.

TYPE OF LEGISLATION

Much of the revenue legislation had to do with taxation of the new source found in legalized liquor. Modification and extension of the sales tax accounted for much more. Additions and modifications were made to commodity taxes, income taxes, motor vehicle taxes, chain store taxes, gasoline taxes, inheritance taxes, as well as some others.

TAXATION OF LIQUOR

In regard to the taxation of the newly legalized liquor, it may be said that most states are still feeling their way and that legislation is influenced on the one hand by the desire for regulation and on the other by the desire for revenue. Some of the early legislation of some states has already been modified while agitation for modification continues in many others. The table (page 192) is not complete, but will give an idea of the type of legislation which imposed taxes upon liquor as of Jan. 1, 1934.* The levy is usually not the same for "non-intoxicating" and "intoxicating" beverages.

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* *Tax Systems of the World,* published by Commerce Clearing House, Chicago, gives in detail the tax systems of each state and should be consulted by any one wanting complete and accurate information.

EXAMPLES OF TAXES AND LICENSES UPON LIQUOR

M.=Manufacturer; W.=Wholesaler; R.=Retailer; I.=Importer

State	Non-intoxicating		Intoxicating	
	Tax	License	Tax	License
Arizona	None	M. $250 W. 50 R. 25 to 50	None	M. $250 W. 100 R. 100
Arkansas	$1 a bbl. sold by mfgr. or importer	M. 500 W. 50 R. 10 to 20		
California	62c. a bbl. sold by mfgr. or importer	M. 100		M. 50 W. 100 I. 100
Delaware	$1 bbl. manufactured and sold. 4% gross sales, retail; 1% gross sales, wholesale	M. 3,000 R. 100–150 I. 500	4% of gross retail sales; 1% gross wholesale sales	Varies for different types of dispensers
Illinois	2c. a gal. by mfgr. or importer	M. 500 R. 50		M. 2,500 W. 100 R. 50 I. 250
Kentucky	$1.25 a bbl., sold by mfgr or importer	M. 500 W. 100 R. 25	2c. on each proof gallon	
New Jersey	3½c. a gallon	M. 3,500 W. 750	Liquor, $1 a gallon; wine 10c. to 40c. a gallon	M. 1,000 to 2,500
New York	3½c. a gallon	M. 2,500 W. 500 R. 25 to 200	Liquor, $1 a gallon; wine 10c. to 40c. a gallon	M. (liquor) 15,000 M. (wine) 500 W. (liquor) 4,800 W (wine) 500

SALES TAXES

As a source of emergency revenue some form of a sales tax continues to be most in use. In most of the 20 states where the sales tax is found it operates under a statute of limitations. In some cases the law has been continued for another definite period while in many cases modifications have been made. The tax has been lucrative, in many cases the receipts having surpassed the estimates. Oregon may be noted as having rejected such a tax by referendum. (For further particulars see ''Tax Legislation,'' pp. 201, 202).

CHAIN STORE TAXATION

No relation is to be noted in the taxation of chain stores. Twenty states now levy taxes specifically aimed at this type of business. These are Alabama, Delaware, Florida, Idaho, Indiana, Kentucky, Louisiana, Maine, Maryland, Michigan, Minnesota, Montana, New Mexico, North Carolina, South Carolina, Tennessee, Virginia, Vermont, West Virginia and Wisconsin. Most of the states levy a flat amount based upon the number of stores. Thus, as an example, in Michigan from 2 to 3 stores, the tax is $10 for each store over one; from 4 to 5 stores, $25 for each store over 3; from 6 to 10 stores, $50 for each store over 5; 11 to 15 stores, $100 for each store over 10; 16 to 20 stores, $150 for each store over $15; 21 to 25 stores, $200 for each store over 20; and for each store over 25, $250. In some states, as in Minnesota, the tax is a progressive percentage of gross sales.

INCOME AND INHERITANCE TAXES

The addition of Louisiana and Iowa to the list of states having a personal income tax brings the number of states with such a tax to thirty. In Louisiana the rates range from 2 per cent on the first $10,000 to 6 per cent on income above $50,000. In Iowa the rates range from 1 per cent on the first $1,000 to 5 per cent on the fifth $1,000 and on all income over $5,000. New York has made several modifications, mostly of an emergency nature. Colorado increased all inheritance tax rates while those in Montana were doubled. New Jersey has added an estate tax to her former inheritance tax rates and Virginia has imposed a gift tax. Ohio and Mississippi have been added to the states with reciprocal legislation.

OTHER TAXES

Louisiana and South Carolina have been added to the states which tax oleomargarine. The other states which levy such a tax are Colorado, Idaho, Iowa, Kansas, Kentucky, Minnesota, Nebraska, North Dakota, Oklahoma, Tennessee, Utah, Washington, Wisconsin and Wyoming. As an illustration of the levy, the rates in Wisconsin may be noted. A tax of six cents is levied upon each pound. In addition each manufacturer must pay an annual license of $1,000; each wholesaler or jobber, $500; each retailer, $25; each hotel and restaurant, $25; each boarding house, $5; and each bakery and confectionery, $5. (For Gasoline and Motor Vehicle taxes see "Automobile Taxes," pp. 219, 220).

ACTIVITY OF COMMISSIONS

The emergency conditions have severely taxed the fiscal administrative machinery. Officials have been besought to reduce expenditures, to increase revenues, and to introduce economies. Many special committees have been appointed to study conditions and to make recommendations for change. Among the states in which such special committees have been at work are New York, Ohio, Rhode Island, New Mexico, Arizona, Illinois, Iowa, Minnesota, Oregon, Pennsylvania and Texas. The appropriation for such special investigation was about $350,000. In addition to the work of the special committees, the regular commissions have been much more active. They have done much in the way of research and have made many constructive recommendations to the legislatures and administrative officials. It appears that the emergency conditions may result in a more defensible fiscal system for the states in the future.

MUNICIPAL FINANCE

By H. K. Allen

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GENERAL

An examination of the financial condition of municipalities for 1934 shows definite signs of improvement, which is indicated by a reduction in tax rates, a decline in tax delinquencies, a decrease in the number of defaults, and an increase in the volume of new issues. Tax rates were decreased by the adoption of more efficient methods and the curtailment of public service. The decline in tax delinquencies resulted in part from the general improvement in business conditions and to some extent from the activities of the Home Owners' Loan Corporation. The reduction in the number of defaults is largely attributable to the improvement with respect to delinquencies. Finally, the improvement in the municipal bond market is a result of general recovery in the investment market, improvement in the financial conditions of municipalities, and the advances to municipalities by the Public Works Administration.

EXPENDITURES

Estimates. — While reliable estimates indicate a decline in municipal expenditures for 1934, the most recent year for which the comprehensive statistics of the Bureau of the Census are available is for 1932. And, unfortunately, the figures for 1932 are limited to cities having a population of over 100,000. By Executive order of June 10, 1933, the annual collection and compilation of financial statistics were limited to cities over 100,000 population until after the fiscal year closing June 30, 1935.

MUNICIPAL EXPENDITURES

(000 omitted)

Operation and Maintenance of General Departments: 146 Cities

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways
1932*	$1,806,517	$149,909	$328,797	$160,010	$127,670
1931.......	2,229,492	183,171	421,055	202,502	181,314
1930.......	1,820,905	163,614	361,956	180,553	149,268
1929.......	1,730,288	140,521	339,816	174,858	147,375
1928.......	1,656,989	147,250	328,102	167,979	138,936
1927.......	1,562,615	136,848	315,362	160,259	137,892
1926.......	1,464,849	128,365	295,256	148,658	132,321
1924.......	1,287,484	111,856	259,275	130,388	109,807
1922.......	1,155,691	105,174	234,199	115,488	98,763
1919.......	697,319	72,585	146,763	75,847	65,003
1917.......	591,399	68,912	126,854	60,378	60,712
1915.......	546,568	62,793	120,696	55,758	60,615
1913.......	496,740	58,164	112,676	50,600	55,082
1911.......	452,899	53,766	106,120	45,691	52,214
1907.......	367,367	42,703	87,885	36,899	42,718
1903.......	278,173	30,842	71,020	25,807	34,208

* Statistics for 1932 are for 94 cities having a population over 100,000; all other data are for cities over 30,000.

MUNICIPAL EXPENDITURES

(Continued)

Year	Charities Hospitals, and Corrections	Schools	Libraries	Recreation	Miscellaneous
1932.......	$234,419	$629,353	......*	$63,117	$113,242
1931.......	201,896	839,577	......*	78,952	121,027
1930.......	138,051	637,196	$24,515	66.060	99,692
1929.......	116,147	622,587	23,029	61,863	94,091
1928.......	111,052	598,065	21,847	56,038	87,715
1927.......	99,806	560,668	20,167	53,839	77,731
1926.......	89,987	528,986	18,665	50,427	72,180
1924.......	79,239	475,725	15,782	41,819	63,590
1922.......	76,627	422,843	14,326	38,703	49,603
1919.......	53,262	216,701	9,079	24,204	33,870
1917.......	43,911	180,259	7,570	20,636	22,164
1915.......	38,285	162,332	7,134	20,416	18,535
1913.......	32,702	141,453	6,379	18,555	21,125
1911.......	30,647	127,604	5,939	17,114	13,801
1907.......	24,408	102,395	4,989	11,794	13,572
1903.......	18,280	80,853	4,067	7,457	5,634

* Expenditures for libraries and schools combined in 1931 and 1932.

Per Capita Expenditures.—While some of the absolute expenditures just noted may appear large, yet little significance can be attached to them. The size of an expenditure becomes intelligible in terms of service when one discovers the number among whom it is divided. The per capita expenditures of cities, both as a whole and for particular items, has varied greatly from time to time, but the general tendency has been to increase.

PER CAPITA EXPENDITURES

Year	Total	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, and Corrections	Education		Recreation[2]	Miscellaneous[1]
							Schools [1]	Libraries[2]		
1932....	$47.87	$3.97	$8.71	$4.24	$3.38	$6 21	$16.68	....	$1.67	$3.00
1931....	46.18	3.79	8.72	4.19	3.75	4.18	17.39	....	1.63	2.51
1930....	44.29	3.82	8.68	4.28	3.64	3.12	16.28	$.61	1.59	2.28
1929....	43.45	3.66	8.46	4.33	3.70	2.78	16.14	.59	1.55	2.25
1928....	42.43	3.66	8.33	4.24	3.56	2.70	15.80	.57	1.44	2.14
1927....	40.77	3.46	8.13	4.13	3.60	2.49	15.08	.53	1.40	1.94
1926....	35.99	3.32	7.77	3.90	3.55	2.29	14.49	.50	1.34	1.83
1924....	35.61	3.01	7.10	3.55	3.07	2.08	13.52	.44	1.15	1.67
1922....	33.15	2.94	6.66	3.25	2.87	2.08	12.50	.41	1.09	1.34
1919....	21.63	2.22	4.53	2.34	2.04	1.59	6.88	.28	.74	1.01
1917....	18.96	2.18	4.04	1.93	1.96	1.36	5.89	.25	.66	.69
1915....	18.45	2.10	4.06	1.86	2.06	1.26	5.58	.24	.68	.61
1913....	17.23	2.00	3.89	1.75	1.93	1.11	4.98	.22	.63	.71
1911....	17.62	2.08	4.12	1.77	2.04	1.17	5.04	.23	.65	.53
1907....	15.95	1.86	3.80	1.59	1.91	1.05	4.42	.21	.51	.59
1903....	13.19	1.46	3.35	1.21	1.64	0.86	3.86	.10	.35	.27

[1] Payment for pensions are included in column "Miscellaneous" for the years 1911 to 1928 inclusive; for the years 1903 to 1909, inclusive, they are included with expenses of police, fire, and school departments.

[2] Payments for expenses of art galleries and museums are included in column "Recreation" for the years 1911 to 1928, inclusive; for the years 1903 to 1909, inclusive, they are included with the expenses of libraries; expenditures for libraries and schools are combined for the years 1931 and 1932.

Importance of Different Expenditures.—There is a wide difference in the importance attached to the different functions performed by municipalities. While over a period of years there has been some change in the relative importance of some of the items, it is interesting to note that expenditures for education have always been far larger than any other, and that the relative importance of this item has increased as the years have gone by. The attention devoted to health and sanitation has also been more marked in recent years, while protection and highways have commanded a smaller percentage of the expenditures than formerly. The following table shows the relative importance of the different services over a period of years:

PERCENTAGE OF EXPENDITURES FOR DIFFERENT FUNCTIONS

Year	General Government	Protection to Person and Property	Health and Sanitation	Highways	Charities, Hospitals, Corrections	Education		Recreation	Miscellaneous
						Schools	Libraries*		
1932...	8.3	18.2	8.9	7.1	13.0	34.8	...	3.5	6.3
1931...	8.2	18.9	9.1	8.1	9.1	37.6	...	3.5	5.4
1930...	8.6	19.6	9.7	8.2	7.0	36.8	1.4	3.6	5.1
1929...	8.4	19.5	10.0	8.5	6.4	37.2	1.4	3.6	5.2
1928...	8.6	19.6	10.0	8.4	6.4	37.2	1.4	3.4	5.0
1927...	8.5	20.0	10.1	8.8	6.6	37.0	1.3	3.4	4.8
1926...	8.5	19.9	10.0	9.1	5.9	37.2	1.3	3.4	4.7
1924...	8.5	19.9	10.0	8.6	5.9	38.0	1.2	3.2	4.7
1922...	8.9	20.1	9.8	8.7	6.3	37.7	1.2	3.3	4.0
1919...	10.2	21.0	10.8	9.4	7.3	31.8	1.3	3.4	4.7
1917...	11.5	21.4	10.1	10.4	7.2	31.1	1.3	3.5	3.5
1915...	11.4	22.0	10.1	11.2	6.8	30.2	1.3	3.7	3.3
1913...	11.6	22.6	10.1	11.2	6.4	28.9	1.3	3.7	4.2
1911...	11.8	23.4	10.1	11.6	6.6	28.6	1.3	3.7	3.0
1907...	11.7	23.8	9.9	12.0	6.6	27.7	1.3	3.2	3.6
1903...	11.1	25.3	9.2	12.4	6.5	29.3	1.5	2.7	2.1

*Percentages for schools and libraries combined for the years 1931 and 1932.

Other Expenditures.—The expenditures just described are designated as ''expenses'' by the Census Bureau. In addition to these are a number of other expenditures, the most important of which are for interest and outlays. The interest payments are for the funded and floating debt, special assessment loans, and other minor types of borrowing. In 1932 the total interest payment was $354,731,000. Expenditures for outlays comprise the amounts paid for the acquisition and construction of more or less permanent improvements, including payments for additions made to those previously acquired or constructed. Such payments in 1932 reached a total of $556,628,000.

SOURCES OF REVENUE

Property Taxes.—The revenue of cities arises from a number of sources. In most cities more than 90 per cent of the funds which go into the general revenue fund come from the general property tax. This is a tax levied against real and personal property. In addition, the Census Bureau designates certain taxes as special property taxes. Such include taxes upon capital stock of corporations, upon savings banks and other financial institutions and upon insurance companies. Included in this, would be taxes levied upon mortgages at time of recording, taxes upon incomes and estates, upon investments, and a wide range of specific taxes.

Poll and Business Taxes.—In many cities, also, some form of poll tax continues to be used, although such taxes are much less important than formerly. No generalization can be made as to method of levy since this varies greatly from city to city. In addition business and non-business license taxes make up a large group of levies upon different types of business activities, some of which, of course, are levied primarily for regulative purposes. The latter include such levies as those upon dogs, dance halls, etc. Receipts from special assessments constitute an important item, but such do not enter the general revenue fund. In some places at a particular time, subventions and grants are an important source of income, while in some cities, also, the earnings from public enterprises are not unimportant.

PERCENTAGE OF RECEIPTS FROM DIFFERENT SOURCES OF REVENUE

Year	General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises	Other Revenues
1932	66.2	4.7	3.9	8.5	9.3	7.4
1931	66.2	4.7	3.9	8.5	9.3	7.4
1930	65.9	6.2	6.7	5.8	9.4	5.9
1929	64.7	6.4	7.2	5.8	9.8	6.1
1928	66.1	5.8	7.6	5.4	9.2	5.9
1927	66.1	5.7	7.7	4.9	9.6	6.2
1926	65.7	5.9	7.2	4.9	10.0	6.4
1924	66.1	5.7	5.9	5.3	10.3	6.8
1922	66.9	5.2	4.8	5.9	9.0	8.2
1919	66.0	7.6	5.6	4.1	10.2	6.4
1917	64.3	7.4	7.8	4.0	9.9	6.6
1915	62.4	7.8	8.5	4.2	10.0	6.9
1913	62.4	8.5	8.2	4.5	9.9	6.6
1911	61.9	8.7	8.4	4.6	10.6	5.8
1907	59.4	10.6	8.2	4.8	11.2	5.8
1903	61.4	9.8	7.6	4.3	11.5	5.5

Per Capita Tax Burden. — That the tax burden imposed by cities has been increasing much more rapidly than population is readily seen when one notes the change in the per capita amounts collected from different sources over a period of years.

PER CAPITA RECEIPTS FROM DIFFERENT SOURCES

Year	Total	General Property Tax	Other Taxes	Special Assessments	Subventions and Grants, Donations, and Pension Assessments	Earnings of Public Service Enterprises	Other Revenues
1932	$68.82	$45.57	$3.24	$2.70	$5.84	$6.42	$5.03
1931	70.84	46.90	3.46	3.86	4.79	6.89	4.94
1930	73.32	48.34	4.57	4.91	4.25	6.92	4.33
1929	69.63	45.07	4.43	5.01	4.02	6.82	4.28
1928	72.11	47.67	4.18	5.52	3.87	6.65	4.23
1927	69.77	46.09	3.95	5.36	3.40	6.67	4.29
1926	66.14	43.46	3.90	4.75	3.23	6.60	4.20
1924	58.41	38.59	3.33	3.43	3.12	6.00	3.96
1922	53.57	35.85	2.80	2.58	3.13	4.83	4.38
1919	35.26	23.29	2.68	1.98	1.43	3.61	2.27
1917	31.97	20.57	2.37	2.50	1.28	3.13	2.12
1915	30.00	18.73	2.36	2.54	1.26	3.03	2.08
1913	28.55	17.82	2.42	2.34	1.28	2.81	1.88
1911	28.07	17.37	2.44	2.35	1.30	2.98	1.63
1907	24.67	14.64	2.63	2.02	1.18	2.77	1.43
1903	21.14	12.98	2.06	1.60	0.91	2.42	1.16

MUNICIPAL INDEBTEDNESS

Receipts from sources of revenue may either just pay expenses, more than pay expenses, or fail to pay them. In many cases the administration of the finances have planned for a surplus but because of a shrinkage in revenues have had to resort to borrowing. In the calculations of the Census Bureau municipal indebtedness is divided into two distinct groups—funded debt and floating debt. The former includes all obligations represented by formal investments which have a number of years to run for the redemption of which no assets other than a sinking fund have been specifically designated. The latter, on the other hand, includes such indebtedness as is evidenced by warrants and accounts payable, by short term bonds, etc. The gross indebtedness is, of course, the total amount, while to subtract from this the value of the assets in a sinking fund will indicate the net indebtedness. The following table shows the total indebtedness, the sinking fund assets, and the net indebtedness for certain years. The latest statistics that are available for 1931 and 1932 give only net indebtedness.

MUNICIPAL INDEBTEDNESS

(000 omitted)

Year	Funded or Fixed, and Floating Debt	Sinking Fund Assets		Net Debt	
		Amount	Per Capita	Amount	Per Capita
1932	........*	........*	.....*	$6,289,078	$166.66
1931	........*	........*	.....*	6,328,778	159.70
1930	$7,808,379	$1,840,816	$47.20	5,967,563	153.02
1929	7,233,151	1,703,316	44.45	5,529,835	144.33
1928	6,860,660	1,607,178	42.72	5,253,482	139.27
1927	6,456,781	1,513,273	41.10	4,943,507	134.27
1926	6,040,399	1,407,596	38.93	4,632,803	128.13
1924	5,057,023	1,215,043	34.82	3,481,980	110.09
1922	4,332,114	1,051,468	31.27	3,280,645	97.57
1919	3,352,688	811,516	25.93	2,541,172	81.18
1917	3,150,424	704,573	23.26	2,445,851	80.75
1915	2,866,008	620,102	21.50	2,245,906	77.86
1913	2,490,461	540,454	19.20	1,950,006	69.28
1911	2,305,059	496,230	11.52	1,808,828	67.52
1907	1,657,320	362,441	15.68	1,294,878	56.04
1903	1,223,101	290,096	13.90	933,004	44.71

* Not available for 1931 and 1932.

RECENT DEVELOPMENTS

Improvement in the Bond Market.—An improvement in the demand for municipal securities is indicated by the following table on page 199 which shows the aggregate disposals of long-term obligations by states and municipalities for the first ten months of each year for a series of years.

Another indication of improvement in the bond market is a decline in the number and amount of issues which failed to receive bids. According to the *Commercial and Financial Chronicle,* there were 697 separate issues totaling $260,089,158 which failed to receive bids in 1932. In 1933 the number of abortive offerings declined to 528 issues, and the total amount involved in the issues which failed to sell was $211,899,796.

Federal Emergency Administration of Public Works.—The table showing municipal bond issues does not include the extensive financing of public-works projects in municipaities by the PWA. This agency was created by the National Industrial Recovery Act which became effective June 16, 1933. Among other things, authority was granted to the Administrator to furnish grants, not subject to repayment, for 30 per cent of the total expenditures incurred for the payment of labor and material costs on approved public-works projects. Moreover, the agency was authorized to accept 4 per cent general obligation or revenue bonds of the municipalities as security for the loan portion of the allotment. Prior to April 4, 1934 allotments had been made to over

MUNICIPAL BOND ISSUES*
(000 omitted)

Year	Total First Ten Months
1934	$ 728,531
1933	392,580
1932	701,938
1931	1,156,129
1930	1,211,857
1929	1,055,135
1928	1,094,074
1927	1,297,029
1926	1,149,105
1925	1,174,724
1924	1,280,504
1923	850,952
1922	990,188
1921	868,392
1920	570,109
1919	581,871
1918	245,789
1917	402,828
1916	402,548
1915	434,829
1914	423,171
1913	327,902
1912	345,871
1911	341,092

*Source: *Commercial and Financial Chronicle.*

2,400 projects amounting to $570,499,433. Of this amount, $434,500,000 was allotted to states and municipalities. While the Public Works Administration has allotted millions of dollars, it had purchased only a comparatively small portion of the bonds covered by the allotments. In many cases, municipalities have asked that allotments be rescinded in the belief that they can finance the projects in the public market on terms lower than the 4 per cent interest basis required by the PWA.

Tax Delinquency. — Tax delinquency is a natural phenomenon of a business depression. And a rising trend of tax delinquency inevitably cripples municipal functions and weakens municipal credit. Dun and Bradstreet has made a study of the trend of tax delinquency in 145 cities over 50,000 population for the four-year period from 1930 to 1933. While these data throw no light on the situation in particular localities, they are valuable in that they do indicate the general situation. Only fragmentary data are available showing the amount of tax delinquency in 1934, but the trend is unmistakingly downward.

MEDIAN TREND OF TAX DELINQUENCY, 1930-33[1]
One Hundred Forty-five Cities of Over 50,000 Population[2]

Fiscal Year Ending	Per Cent			
	1930	1931	1932	1933
Twleve Cities Over 50,000 Population:				
Median	11.9	17.5	25.4	26.8
Average of percentages	12.1	15.9	22.5	27.1
Nine Cities, 300,000–500,000 Population:				
Median	7.4	10.2	14.1	19.9
Average of percentages	10.1	11.4	17.5	20.5
Fifty-three Cities, 100,000–300,000 Population:				
Median	11.8	15.0	21.4	24.1
Average of percentages	13.7	16.3	22.9	26.1
Seventy-One Cities, 50,000–100,000 Population:				
Median	9.8	12.8	19.9	25.0
Average of percentages	12.9	16.1	22.4	27.4
One Hundred and Forty-Five Cities:				
Median	10.8	13.3	20.1	25.2
Average of percentages	12.9	15.8	22.1	26.3

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[1] Source: Dun and Bradstreet.

[2] In this compilation only those cities have been used for which comparable figures for the four years were available.

DEBT DEFAULTS

The rising trend in tax delinquency during recent years logically resulted in a large number of defaults. The *Bond Buyer* estimated, with certain reservations, that there were 690 cities and town in default on their bonds on March 1, 1934. The following states had the largest number of defaults:

State	Defaults	State	Defaults
Florida	137	Ohio	74
Kentucky	10	Oklahoma	15
Michigan	25	Oregon	16
New Jersey	87	Tennessee	35
North Carolina	144	Texas	36

The two states, Florida and North Carolina, which had the largest number of defaults also had the largest increases in local indebtedness between 1912 and 1932, the percentages being 2,779.1 and 1,300.8 respectively. The indebtedness of Maine during the same period increased only 73.2 per cent while that of Massachusetts increased 99.2 per cent. And Maine had only one default while Massachusetts had none.

DEBT ADJUSTMENT LEGISLATION

For the purpose of aiding municipalities which are in default on their obligations, various states have recently passed state receivership and debt adjustment acts. Boards or commissions have been established to supervise local indebtedness in general, to supervise the refunding of municipal bonds, and to act as receivers in event of failure to meet debt service.

The Municipal Bankruptcy Act, a Federal measure, was enacted May 24, 1934. It is an emergency measure effective only until May 24, 1936. It enables any taxing district, with the consent of its creditors and the approval of a Federal District Court, to adjust its debt structure. It provides that any taxing district may file a petition with a Federal District Court stating that it is unable to meet the terms of its present debt contracts and proposing a plan for readjustment. Fifty-one per cent of the creditors in amount (or 30 per cent in case of drainage, irrigation, and levee districts) must accept the plan and consent to the filing of the petition. After notice and hearing, the plan of adjustment may be made binding on all creditors if it is approved by 75 per cent, in amount, of those affected by it (or 66⅔ per cent in case of drainage, irrigation, and levee districts). The plan must also be approved by two-thirds of the creditors in each class of debt affected by the plan. Section 80K specifically provides that nothing in the act shall limit the power of any state to control its political subdivisions. Thus, if they feel that the use of the act may react unfavorably on their credit, state officials may prohibit the local units from using it. Prior to Nov. 3, 1934 only ten applications have been filed for relief under this act.

TAX LEGISLATION

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STATE LEGISLATIVE SESSIONS

In 1934 nine states were called in regular session and 26 in special session. There was a total of 47 sessions in an even year which used to be an off year for legislation. The Governor of North Dakota called a session from July 19 to July 23 but as he was unable to obtain the necessary quorum of both branches, it cannot be considered a session.

LIQUOR TAX

The new tax of the year is the liquor tax. Effective provisions have yet to be made for repeal in Alabama, Arkansas, Georgia, Oklahoma, Tennessee and Texas. Kansas, Mississippi, North Dakota and North Carolina are dry as a result of referendum. The people of Arkansas are permitted to distill brandy for personal use or export purposes. Kentucky is constitutionally dry but according to statutory law, wet. The legislature assumes that all liquor consumed is for medicinal purposes. Nevada is the only state in which the administration of liquor regulations and licenses is local rather than state. In Louisiana the localities may levy a tax additional to the state tax.

Iowa, Maine, Michigan, Montana, New Hampshire, Ohio, Oregon, Pennsylvania, Vermont, Virginia and Washington have state monopoly of liquor. Delaware has quasimonopoly. Arizona, Colorado, Delaware, Illinois, Indiana, Kentucky, Maine, Maryland, Massachusetts, Minnesota, Missouri, New Jersey, New York, Oregon, Pennsylvania and Wisconsin have a gallonage tax in addition to the license fees. Connecticut, New Mexico and Ohio levy a gross profit tax on the wholesalers and Rhode Island claims all profits in excess of 9 per cent. It would seem that capacity might be a very important factor in determining the license fee for manufacturers and yet only Delaware, Illinois, Massachusetts and New Jersey take it into consideration. Maine has a rather unique provision. The license tax on distillers and brewers is $100 if Maine products are used exclusively, and $3,000 if other state products are used exclusively.

In Delaware, Illinois, Iowa, Kentucky, Mississippi, Missouri and New Hampshire the liquor revenue is retained by the state going into the general fund. In Arizona, Massachusetts and Michigan it is retained by the state but dedicated to certain functions, — Arizona, unemployment relief; Massachusetts and Michigan, old age pensions. In Pennsylvania only the license money from restaurants goes to the localities, the rest goes to the state and according to the statutes for old age pensions, care of the blind and unemployment relief, but some is being diverted for education. In the remaining states the revenues are divided between the state and localities. In Indiana, New Mexico and Wisconsin part of the money is dedicated to education and in Colorado, Maine, Oregon, Pennsylvania and Washington part to old age pensions.

The yield from the liquor taxes has been large but not up to estimates. It is thought that lower taxes would eliminate bootlegging and increase the yield.

SALES TAX

Chain Store.—It is difficult to state just how many states there are with a sales tax. The taxes which we call ''sales taxes'' are nearly as variable as the states themselves. There are four distinct types of ''sales taxes'' excluding the excise taxes on gasoline, tobacco and other luxuries. In Wisconsin and Minnesota the so-called sales taxes are chain store taxes. Vermont might also be classified as a chain store tax as all gross sales under $50,000 are exempt. A temporary injunction has been granted in Vermont against the collection of the tax from two specific chain stores. In Indiana, South Dakota and in West Virginia (1933 tax), the tax is based on gross incomes accruing from personal services as well as the sale of tangible personal property.

Flat Rate License.—In Louisiana, New Mexico and Virginia there is a flat rate license tax depending on the amount of sales. This year New Mexico's law was repealed and a new tax with higher rates enacted. The rates graduate from $2 on gross sales up to $3,000 to $500 on sales up to $400,000. Over that amount is an additional tax of $25 per $1,000.

Business Gross Income. — New Mexico also levies a 2 per cent tax on gross income from retail businesses and an ⅛ of 1 per cent on the gross income from wholesalers. This is the ''Emergency School Tax Act'' effective from May 1, 1934 to June 30, 1935. The revenue is divided among the counties for schools. The state tax commissioner must approve all local school budgets.

Tangible Commodity.—The fourth class is the tax of 1 or 2 or 3 per cent on the sale of a tangible commodity. This class can be subdivided into the states where the tax is levied at one rate on all sales of tangible commodities at one stage of their industrial process, and to the states where there is one rate for retailers, one rate for wholesalers, or where the rate depends upon the kind of goods sold. California, Illinois, Iowa, Kentucky (1934 law), Michigan, Missouri, Oklahoma and Utah belong in the first subdivision and Arizona, Mississippi, North Carolina, Virginia, Washington and West Virginia in the second. New York belonged to the first division but New York's tax expired June 30, 1934. Iowa's tax was passed this year. The Property Relief Act of Iowa combines in one law a sales tax and an income tax. The income tax is permanent. The sales tax of 2 per cent on gross receipts from retail sales of tangible personal property is temporary from April 1, 1934 to April 1, 1937. Iowa includes in the tax base, sales of gas, electricity, water, communication services and admissions to places of amusements. Municipally owned public utilities are subject to the tax. The sales tax is as far as practicable to be added to the sales price.

Missouri in 1934 levied a sales tax of ½ of 1 per cent on the gross receipts of the sale of tangible personal property, admission tickets and certain designated services including utilities, newspapers and out-door advertising, which is in effect from Jan. 15, 1934 to Dec. 31, 1935.

Kentucky.—In 1930 Kentucky levied a gross sales tax, the rate depending upon volume of sales. This tax proved more lucrative to the lawyers of Kentucky than to the state. In 1934 a 3 per cent sales tax was levied on gross receipts from the sales at retail of tangible personal property, places of amusement, including hotels and restaurants and certain types of public utilities. Two-thirds of the revenue of the tax is to go to the general fund of the state and one-third to the counties.

West Virginia. — Last year West Virginia's gross sales tax was repealed and in its place a gross income tax was levied. This year a supplemental emergency Revenue Act was passed providing for a surtax of 50 per cent upon all transactions taxable under the 1933 law. This surtax will expire June 30, 1935. In addition to the surtax, a general consumers sales tax of 2 per cent on all retail sales of more than five cents was levied. This tax must be added to the sales price. The revenue of this tax is for education.

New York City and St. Louis. — New York City levies a 2 per cent city tax on retail sales. A similar tax was introduced in St. Louis but was not approved by the City Fathers.

Revenue. — In the majority of cases, the sales tax is levied for a definite period. The greatness of its yield and its growing popularity in many of the states is leading to an extension of the tax. It is to be extended indefinitely in Illinois where the yield to the state was $36,632,933 for the first year. In Illinois the sales tax has not only made it possible to eliminate all state property taxes, but there has been sufficient to supplement other shrinking revenues. New York's tax was levied for 14 months. The revenue was $30,000,000; $3,000,000 over estimate. Michigan's yield of $35,000,000 for the first year was also $3,000,000 above estimate. Michigan's rate was 3 per cent; New York's, 1 per cent, and Illinois, 2 per cent. Oregon for the second time has rejected a sales tax by referendum. Sales tax legislation is pending in Ohio.

INCOME TAX

State Alignment. — Two more states have a personal income tax, Iowa and Louisiana, making 30 states that have an income tax in some form. There are only 11 states which have neither a sales tax, gross income tax, nor a net income tax:—Colorado, Florida, Maine, Maryland, Nebraska, Nevada, New Jersey, Pennsylvania, Rhode Island, Texas and Wyoming.

Louisiana.—A constitutional amendment was necessary to permit the new Louisiana income tax at a rate ranging from 2 per cent on the first $10,000 to 6 per cent on incomes above $50,000. The rate for corporations is 4 per cent on net income as determined for Federal income tax purposes.

Iowa.—We have already mentioned the Property Relief Act of Iowa, with its combined sales and income tax. The rates for the income tax range from 1 per cent on the first $1,000 to 5 per cent on the fifth $1,000 and on all income over $5,000. In the matter of exemptions, the law has followed the Wisconsin idea, also used in Arizona, of taking the personal exemption off the tax rather than off the net income: $6 for a single person, $12 for head of family, and $2 for each dependent.

South Carolina.—In place of the 5 per cent flat tax on the income from intangibles, South Carolina has a graduated rate of 3 per cent to 5 per cent with a $200 exemption.

New Mexico increased its exemptions from $1,000 to $1,500 for a single person and from $1,500 to $2,500 for married people, and eliminated the property tax offset.

Virginia, on the other hand decreased its personal exemptions from $1,250 for a single person to $1,000 and from $2,800 for married people to $2,000; exemptions for dependents were decreased from $400 to $200.

Minnesota.—The district court of Ramsey County, Minnesota, held the Minnesota income tax unconstitutional, but on March 27 the Supreme Court of the State reversed the decision of the district court.

New York State made some rather effective changes in its income tax rates. The emergency rates of 2 per cent, 4 per cent and 6 per cent are continued for another year. Upon the 1933 income was levied a temporary 1 per cent tax inaccurately called a tax on gross income. The taxpayer, in computing his net income, was permitted to take his personal exemptions and all other exemptions allowed, with the exception of capital losses and gains. This was done in the hope of catching those taxpayers who cancelled their otherwise net income by realizing capital losses. This additional 1 per cent tax on this basis was unfair to the salaried person who did not have capital losses or gains. They were all caught in the same net. The 1934 legislature has passed what may be called a minimum income tax. Under this plan, each taxpayer who has either made or lost money through the sale of capital assets will make two computations of his net income and his tax. The first computation will be made as it always has been made, *i. e.*, by including capital gains and deducting capital losses. To this net income the taxpayer will apply the progressive rates of 2 per cent, 4 per cent and 6 per cent. The second computation of income will be made by excluding profits and without allowing a deduction of losses from the sale of capital assets. To this net income the taxpayer will apply a flat rate of 2 per cent without progression. He will then pay the higher tax of the two. If you lose, you cannot deduct your losses; if you win, you pay a tax. Another important change in the New York State Law is the definition of ''Resident.'' Until this year, every person actually domiciled in New York State, regardless of where he may have lived, was taxable upon his net income. This was rather hard on the person who lived abroad but who still wished to retain his domicile in New York State. Under the 1934 statute, such persons will be taxable as non-residents if they maintain no permanent place of abode in New York State but do maintain permanent places of abode elsewhere, and do not spend more than 30 days of any taxable year in the State of New York.

Montana in 1933 levied an income tax. There was a little doubt as to its constitutionality. In November, 1934 the people accepted a constitutional amendment permitting the legislature to levy graduated taxes upon incomes of persons, firms and corporations for the purpose of relieving the tax burden on real property. The Montana law was based on the Idaho law.

CHAIN STORES

States are still continuing to levy what might be called discriminatory taxes upon chain stores. The rate of the 1934 Kentucky tax is $2 upon one store; $20 per store from 2 to 10 stores; $50 per store, 11 to 25 stores; $100 per store, 26 to 50 stores; and $150 for every store in excess of 50. In Louisiana the tax rate on chain stores has been changed. The new rate which becomes effective Jan. 1, 1935, is graduated from $10 on each store in the state for chains operating 1 to 10 stores to a maximum of $550 on each store in one chain in excess of 500 stores. The people of Colorado initiated a referendum for a chain store tax. It was passed at the November election and will become effective Jan. 1, 1935. Every store must be licensed. The fees will range from $2 on one store to $300 for each store in excess of 24.

LUXURIES

Cosmetics, Admissions, Tobacco — There was the usual legislative agitation over the taxation of cosmetics and other luxuries. Ohio postponed until Dec. 31, 1937 the expiration of its tax on cosmetics and admissions. Mississippi changed the tobacco tax rate from 20 per cent of retail selling price to 1 cent for each 5 cents or fraction thereof of retail selling price. Texas levies a $5 permit fee on each cigarette-vending machine. Louisiana reduced the tax rate on cigars retailing from 5 cents to 8 cents to $2 per 1,000 and repealed the tax on soft drinks.

Advertising and Cotton Futures.— Persons or corporations in Louisiana selling advertising in the moving pictures or in newspapers which have a circulation of 20,000 or over a week must pay a license of 2 per cent of gross receipts. All sales of future deliveries on the New Orleans cotton exchange are taxable at 2 per cent per $100 of sales price.

Racing.—New York now levies a 15 per cent tax on admission tickets to the horse races. A resolution was also passed to amend the Constitution so as to permit pari-mutuel betting. Massachusetts has placed a license fee on horse and dog races and the people have approved the pari-mutuel betting, as have also the people of Nebraska. Rhode Island, if the people concur by referendum, has levied a tax ranging from 1 per cent to 3½ per cent, depending on the system, on the amount bet; in addition, there will be daily licenses. New Jersey levies a $500 license fee on each dog race track.

Entertainment. — South Carolina changed the tax of 1 cent for each 10 cents of moving picture admission price to a tax based on theatre capacity, graduated according to the population; the range is from $1 per seat per year in a town of less than 1,500 population to $2 in one of 30,000 or more. For boxing and wrestling matches, Virginia imposes a license fee of from $25 in cities and counties of not over 5,000 inhabitants to $300 in cities of more than 150,000. Texas levies a gross receipts tax of 3 per cent on admissions to such matches.

Receivership.—There has not been a state legislature in session that has not passed some kind of legislation in regard to collection of taxes and delinquent taxes. Ohio enacted a receivership law comparable to those already in effect in Illinois and New Jersey.

Tax Limitations. — Many states are still of the opinion that the best way to curtail expenditures is by placing a limit upon the tax rate. Arkansas and Washington did so by constitutional amendment, and Ohio will not weaken its tax limit laws. On the other hand, Oregon rejected all limits and Michigan and Texas rejected restrictions on expenditures.

The financing of education is this year one of the most perplexing problems of government. We have already noted that Indiana, New Mexico and Wisconsin dedicate part of the liquor revenue to education; New Mexico's gross income tax revenues and West Virginia's general consumers sales tax receipts go to schools. Illinois is diverting one-third of the gasoline tax to the common school fund and has also set up a "Working Cash Fund" for school districts having a population of less than 150,000 to be used for ordinary purposes and obtained from bond issues without referendum unless 20 per cent of voters petition for a referendum. Louisiana is dedicating to education ½c. gasoline tax. Kentucky passed a "New Public Schools and College Act" fixing new rate limitations and increasing the poll tax maximum from $1.50 to $2.00; in Kentucky, the county is the school unit. This Act permits subdistricts within the county to determine, by vote of the people, the amount of tax they wish to levy for education within certain limitations. The school district trustees of Montana may levy a special tax if they lack money with which to pay their school debts.

EXEMPTIONS

The question of exemptions is most controversial. There is much agitation in regard to reducing the amount of exempt property but this has not as yet resulted in legislation. Texas defeated a proposal which would have made the lands belonging to the University of Texas taxable for county and school district purposes. On the other hand laws are still being passed broadening the exemption base. Florida and Louisiana by constitutional amendment exempt homesteads; Louisiana up to $2,000 and Florida up to $5,000. Florida will exempt motion picture studios for 15 years. The Relief Administration property is specifically exempt in Alabama. Minnesota adds household goods and farm machinery to the exempt class.

Every state is still seeking new sources of revenue and ways of decreasing the burden on real property. New York State looks to reorganization of county government as one way. A resolution to amend the constitution making reorganization possible is now pending. Reorganization of county government was approved in some measure at the November elections by Florida, California, Montana, Ohio and Wisconsin. In Michigan and Texas the reorganization proposals were rejected. Colorado, Michigan, Mississippi, Texas and Washington rejected amendments permitting the classification or further classification of property for purposes of taxation.

The states are still continuing the special tax studies. In New York the Tax Revision Commission is continued until February, 1935. Ohio appropriated money for a special study by the Tax Commission of the operation of Ohio's tax laws.

The Rhode Island Tax Commission will study new sources of revenue and report in 1935. New Mexico created a Taxation and Government Commission to make a revision of the Tax Code and enforce economy by the consolidation of various state offices. Kentucky by statute reorganized its state government.

During 1933 and 1934 the following committees reported: Arizona, Special Tax Survey Commission; Illinois, Commission on Taxation and Expenditures; Iowa, Committee on Reduction of Governmental Expenditures; Minnesota, Tax Revision Committee (advisory only); New York, Commission for the Revision of the Tax Laws and Governor's Committee on the Cost of Public Education in the State of New York; Oregon, Committee on Assessment and Taxation of Municipal Utilities; Pennsylvania, Mineral and Forest Land Taxation Commission; Texas, Joint Legislative Committee on Organization and Economy. The various states appropriated $350,000 for these studies. Possibly the time will come when the states will pool their resources for study and squarely face the issue of overlapping Federal and state taxes.

INCOME TAXES

By Mabel Newcomer

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FEDERAL INCOME TAX

Personal.—A number of changes were made in personal and corporation income taxes by the Revenue Act of 1934. The 4 and 8 per cent normal tax rates have been replaced by a single 4 per cent levy. Further, a credit of 10 per cent is allowed on this normal tax for all income up to $3,000 and earned income up to $14,000. Surtax rates begin after the first $4,000 of taxable income over personal exemptions and credits for dependents. The rate starts at 4 per cent and rises to 59 per cent on taxable net income in excess of $1,000,000. Thus the rate of the surtax and normal tax combined on income over $1,000,000 is the same, 63 per cent, as under the 1932 law. But the differences in the rates applied to the lower brackets result in a higher actual tax on the high incomes.

Personal exemptions and credits for dependents remain unchanged. The capital gains and losses provisions have been completely revised. Instead of a special rate of 12½ per cent on gains and losses from sales of capital assets held more than two years the amount of gains and losses allowed varies from 100 per cent of the actual gain or loss for assets held one year or less to 30 per cent of the actual gain or loss for assets held for more than five years. Gains thus figured are included with other income and taxed at the same rates. Losses may be used to offset gains to any amount, but losses which may be deducted from other income are limited to $2,000.

Corporate. — The corporation income tax rate remains unchanged at 13¾ per cent, but consolidated returns are no longer permitted except in the case of railroads. Railroads filing consolidated returns must pay 2 per cent additional, or 15¾ per cent in all, for the privilege. Personal holding companies are subject to a special surtax on ''undistributed adjusted net income,'' of 30 per cent on income under $100,000 and 40 per cent on income over $100,000.

The excess profits tax of 5 per cent on income in excess of 12½ per cent which was imposed by the National Industrial Recovery Act is continued by the 1934 Revenue Act. The special surtax rate on corporations accumulating surplus to avoid taxes has been reduced to 25 per cent for adjusted income under $100,000 and 35 per cent for the adjusted income over $100,000.

Revenue from Federal Tax.—Revenue from personal and corporation income taxes increased for the first time since 1930, but the proportion of Federal tax revenues from personal and corporation income taxes has declined to between one-third and one-fourth, whereas these taxes provided two-thirds of Federal tax revenues before the depression.

REVENUE FROM FEDERAL INCOME TAX
(in thousands of dollars)

Fiscal Year	Corporation Tax	Personal Tax	Total Tax	Per Cent of All Federal Taxes from Income Tax
1933–34	$397,516	$419,509	$817,025	27.7
1932–33	394,218	352,574	746,791	40.3

STATE INCOME TAXES

General. — Comparatively few changes have been made in state income tax laws during the past year. Taxes with less variable yields, such as the sales tax, have proven more popular.

Iowa. — The only state to introduce new personal and corporation income taxes is Iowa. Iowa's personal income tax is graduated from 1 to 5 per cent with deductions of $12 for heads of families, $6 for single persons and $2 for dependents. The deduction for heads of families, equivalent to a $1,200 exemption, is the lowest of any of the state taxes. The Iowa corporation tax is a flat two per cent rate. A part of the revenue from these taxes will be returned to local tax districts in proportion to the assessed value of property subject to the property tax.

Changes in Other States.—Virginia has reduced personal exemptions to $1,000 for single persons and $2,000 for heads of families and $200 for dependents. Mississippi has revised her income tax law, but rates of taxes and exemptions remain unchanged.

New York has continued the temporary increases in the personal income tax rates for another year and has limited deductions for capital losses. The Minnesota income tax law has been upheld by the State Supreme Court after having been held invalid in the District Court.

Present Status.—The present status of state income taxes is as follows: Twenty-four states are taxing personal and corporation income. Three states are taxing personal income but not corporation income. In two of these the tax applies only to unearned income. Two states are taxing corporation income but not personal income. All of these states excepting Delaware, Iowa, Massachusetts, New Hampshire, Tennessee, Utah and Vermont, tax such income of non-residents as they can reach. New Mexico, New York, North Carolina and South Carolina, however, credit non-residents with the amount of any income tax paid in the state of residence if such state allows similar credits. All of these states but Wisconsin tax residents on income derived from sources outside of the state, with only Georgia, Missouri, New Mexico, North Carolina and South Carolina allowing credits for income taxes paid in other states.

DIGEST OF STATE PERSONAL INCOME TAX PROVISIONS

State	Year First Effective	Personal Exemptions			Rates of Tax (Per Cent)	Amount of Taxable Income in Excess of Which Maximum Rate Applies
		Single	Head of Family	Dependents		
Ala.	1933	$1,500	$3,000	$300	1 – 5	$8,000
Ariz.	1933	800 (a)	1,750 (a)	400 (a)	1 – 5½	11,000
Ark.	1929	1,500	2,500	400	1 – 5	25,000
Del.	1917	1,000	2,000	200	1 – 3	10,000
Ga.	1929	1,500	3,500	400	1 – 5	20,000
I.	1931	700	1,500	200	1 – 6	5,000
Iowa	1934	600 (b)	1,200 (b)	200 (b)	1 – 5	5,000
Kan.	1933	750	1,500	200	1 – 4	7,000
Mass.	1916	2,000 (c)	2,500 (c)	250 (c)	1½–6 (d)	—
Minn.	1933	1,200	2,000	250	1 – 5	10,000
Miss.	1912	750	1,500	200	2½–6	15,000
Mo.	1917	1,000	2,000	200	1 – 4	9,000
Mont.	1933	1,000	2,000	300	1 – 4	6,000
N. H.	1923	200	200	—	(e)	—
N. M.	1933	1,000	1,500	200	1 – 4 (f)	100,000
N. Y.	1919	1,000	2,500	400	2 – 6	50,000
N. C.	1921	1,000	2,000	200	3 – 6	6,000
N. D.	1919	500	1,500	200	1 –15	15,000
Ohio	1931	—	—	—	5 (g)	—
Okla.	1908	1,000	2,000	1,000	1 –10	100,000
Ore.	1930	800	1,500	300	2 – 7 (h)	7,000
S. C.	1922	1,000	1,800	200	2 – 5	6,000 (i)
Tenn.	1929	(j)	(j)	(j)	5 (k)	(k)
Utah	1931	1,000	2,000	400	1 – 4 (m)	8,000
Vt.	1931	1,000	2,000	250 (n)	2 – 4 (o)	—
Va.	1843	1,000	2,000	200	1½–3	5,000
Wis.	1911	800 (a)	1,750 (a)	400 (a)	1 – 7 (p)	12,000

(a) Exemptions actually deductions from tax of $8, $17.50, and $4 respectively. (b) Exemptions actually deductions from tax of $6, $12 and $2 respectively. (c) Exemptions apply to earned income. There is a flat exemption of $300 for unearned income. (d) Earned income and annuities 1½%; capital gains 3%; interest and dividends 6%. (e) Average rate on real estate (in 1933 2.74%); applies only to income from interest and dividends. (f) Property tax offset up to one-fifth of property tax; on residence occupied by owner up to $250. (g) Applies only to income from intangibles. (h) Exemptions and rates do not apply to income from intangibles; this is taxed at 8% with a $500 exemption for a single person and $800 for heads of families. Personal property tax offset. (i) For income from interest and dividends 3 to 5% on all over $200. (j) Income from $100 worth of stocks and bonds. (k) Applies only to income from dividends and interest. (m) Property tax offset is applied to the extent of one-third of tax. (n) In case all income is from intangibles exemption is $400 for a single person and $800 for a head of a family. (o) 2% on all income except that from intangibles; 4% on income from intangibles. (p) Including surtax for teachers' pensions rates are 2 1-16 to 13%.

DIGEST OF STATE CORPORATION INCOME TAX PROVISIONS

State	Year When First Effective	Kind of Corporations Exempt	Amount of Income Exempt	Rate of Tax (Per Cent)	Exemption of Dividends of Other Corporations Paying Income Tax to State	Exemption of interest from Government Bonds
Ala.	1933	——	$1,000	3	x	x
Ariz.	1933	Insurance	—	2–6 (a)	x	x
Ark.	1929	Foreign insurance	1,500	2	x	x
Calif.	1929	Public utilities; insurance	—	2 (b)	x	–
Conn.	1915	Public utilities; insurance; banks	3,000	2	–	–
Ga.	1930	Insurance; banks	—	4	–	x
I.	1931	National banks	—	1–4 (c)	x	x
Iowa	1934	Insurance; banks	—	2	x	x
Kan.	1933	——	—	2	x	–
Mass.	1919	Public utilities; insurance	—	2½ (d)	x	–
Minn.	1933	Banks; mines; insurance	1,000	1–5 (e)	x	x
Miss.	1914	Banks	750	2½–6 (f)	x	x
Mo.	1917	Express; insurance; banks	—	2	–	x
Mont.	1917	Express; national banks	2,500	2	–	–
N. Y.	1917	Public utilities; insurance; real estate	—	4½	–	–
N. M.	1933	Express; insurance; banks	1,000	2	x	x
N. C.	1921	——	—	6	x	x
N. D.	1919	Insurance; national banks	—	3	x	x
Okla.	1931	Insurance	—	1–10 (g)	–	x
Ore.	1930	Insurance	—	8	–	–
S. C.	1922	——	—	4½	–	x
Tenn.	1931	——	—	3 (h)	–	–
Utah	1931	——	—	3 (i)	–	x
Vt.	1931	Public utilities; insurance; banks	—	2	–	x
Va.	1927	Public utilities; insurance; banks	—	3	x	x
Wis.	1911	Railroad; car; insurance; savings banks	—	2–6 (j)	–	x

(a) Maximum rate applies to all income over $7,000. (b) Bank rate to be determined by average rate of income plus personal property taxes on business corporations; not to exceed 6%. (c) Maximum rate applies to all income over $5,000. (d) Bank rate to be determined by Commissioner; not to exceed highest rate applied to business corporations. (e) Maximum rate applies to all income over $10,000. (f) Offset up to one-fifth of *ad valorem* taxes. (g) Maximum rate applies to all income over $100,000. (h) Five per cent on income from stocks and bonds. (i) Or 1–20 of 1% of value of tangible property, whichever is greater, less property tax offset up to one-third of tax. (j) Maximum rate applies to all income in excess of $6,000.

DISTRIBUTION OF STATE INCOME TAXES

Much of the revenue from state income taxes is earmarked for specific functions. School funds receive practically all of the proceeds in Delaware, Minnesota and New Mexico, three-fourths in Oklahoma and Utah, one-half of the personal income tax and one-fourth of the corporation income tax in Montana, $750,000 in Arkansas and $300,000 in Vermont, and unspecified sums in South Carolina and Washington. In Arkansas $500,000 is set aside for charities; in Vermont $150,000 for local roads.

Part of the yield is distributed to local governments for general local use. In Iowa part of the proceeds of the income and sales taxes are returned to local tax districts but the property tax must be reduced in proportion. In Massachusetts the state retains the temporary additional tax on personal income and enough of the regular tax to cover the cost of administration. The remainder is distributed to the local districts. The corporation tax is distributed, five-sixths to the cities and towns and one-sixth to the state. In New Hampshire the proceeds over the cost of administration are turned over to the cities and towns. In New York half of the regular personal income tax, and one-third of the corporation income tax and all of the bank income tax are distributed to local districts. In Tennessee 45 per cent of the corporation income tax on intangibles is distributed to local districts. In Wisconsin the surtax is used for special state expenditures, and also the temporary increase in the normal rates. Sixty per cent of the regular normal tax is distributed to local divisions. The remainder of the proceeds in the different states is paid into the general state fund although the law occasionally specifies that the yield is to be used for the reduction of property taxes or debt.

REVENUE FROM STATE INCOME TAXES

(in thousands of dollars)

State	Amount from Personal Income	Amount from Corporation Income	Amount for State Purposes	Amount for Local Purposes	Fiscal Year Ending
Ark.	$ 50 (a)	$ 69 (a)	$ 119	—	Dec. 31, 1933
Cal.	—	3,394	3,394	—	June 30, 1933
Conn.	—	470	470	—	June 30, 1934
Del.	695	—	695	—	June 30, 1934
Ga.	490 (a)	498 (a)	988	—	Dec. 31, 1933
I	37	53	90	—	Sept. 31, 1933
Mass.	13,501	1,348	1,460	13,389	Nov. 30, 1933
Miss.	165	161	326	—	Sept. 30, 1933
Mo.	2,474 (a)	900 (a)	3,374	—	Dec. 31, 1933
Mont.	—	77	77	—	June 30, 1933
N. H.	413	—	10	403	Dec. 31, 1933
N. Y.	45,724	24,772	52,224	18,252	June 30, 1934
N. C.	1,234	4,647	5,881	—	June 30, 1934
N. D.	51	65	116	—	June 30, 1933
Ohio	6,894	—	6,894	—	Dec. 31, 1933
Okla.	1,766	600	2,366	—	June 30, 1933
Ore.	1,772	521	2,293	—	Dec. 31, 1932
S. C.	150 (a)	450 (a)	600	—	Dec. 31, 1933
Tenn.	636	496	846	286	June 30, 1932
Utah	248	—	248	—	June 30, 1932
Vt.	472	75	547	—	June 30, 1934
Va.	538	1,258	1,796	—	June 30, 1934
Wis.	8,467 (a)	10,400 (a)	11,462	7,405	June 30, 1933

(a) Division between corporation and personal income tax yields estimated.

LAND AND PROPERTY TAXES

By Jens P. Jensen

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REDUCTION IN PROPERTY TAXATIONS

Two significant statistical publications of the Bureau of the Census appeared, one of them being the decennial publication presenting financial statistics of state and local governments for 1932. From advance publications are drawn the figures for the table (page 210) of general property tax statistics for specified years:

Year	Assessed Valuation		Levy	
	Total (millions)	Per capita	Total (millions)	Average tax rate per $100 of assessed valuation
1932	$163,317	$1,311.67	$5,027	$3.08
1922	124,617	1,146.16	3,504	2.81
1912	69,453	715.48	1,350	1.94

It would be erroneous to conclude that the trend of these four series is still upward. While comparable data for all state and local units are not available for the intercensal years, and will presumably not be available again until 1942, the evidence is conclusive that the peak for all four series was reached earlier than 1932 and that in 1934 the revenue from the general property tax was still lower than in 1932. The effects of the drive of property owners, represented in taxpayers' associations and real estate associations, are not apparent in the foregoing table.

EXTENT AND DISTRIBUTION OF DELINQUENCY

The other Census publication is a report of a Federal CWA project presenting data on the collection and delinquency of property taxes. For the first time in history it is possible to secure a picture of property tax delinquency. Differences in fiscal periods among the states, incomplete data necessitating estimates, and other variable factors render the picture somewhat inaccurate in detail and probably in delinquency data somewhat understated, but the general condition is adequately shown. Advance publications indicate that of the 1932-33 levies of $4,414,187,000, on an assessed valuation of $139,514,930,000, the sum of $909,465,000, or an average for all the states of 20.5%, was uncollected and delinquent at the close of the calendar year, 1933.

Owing to variations in fiscal periods in collection procedure and in definitions of delinquency among the states, the percentages of delinquency in each state, which vary from 6% in Massachusetts to 37.5% in North Dakota, must be accepted with caution. Comparisons of percentages of delinquency among counties of the same state, where the same collection system prevails, are more reliable and instructive. In most of the states some counties show only moderate amounts of delinquency; but in several states, the current taxes delinquent amount in some counties to three-fourths or even to four-fifths of the levy. It is also apparent that in many counties the accumulated delinquency far exceeds 100% of the current levy. These delinquent amounts constitute frozen assets of a sort. If and as they are collected, they will serve temporarily to mitigate the deleterious effects of tax limitations already enacted or now being enacted.

TAX COMMISSIONS

An unsuccessful attempt was made in South Carolina to abolish the tax commission. Four states attempted unsuccessfully to increase the functions of their tax commissions at minor points. In Arizona a proposal to make the tax commission a constitutional office was eliminated by the State Supreme Court. A Rhode Island proposal to create a tax appeal board after the manner of the Massachusetts agency failed. The New York commission to revise the tax laws was continued another year. New Mexico created a temporary commisison to revise the state tax system.

The perennial conflict between a statutory administrative tax commission and a constitutional, *ex officio* board of equalization had to be settled on some point or other in every state in which this unsatisfactory arrangement obtains. The Oklahoma Supreme Court held (35 Pac. [2] 946), that the board alone has authority to assess, and the commission may merely report and recommend. A similar issue was presented in Missouri (70 Fed. [2] 670), upholding the authority of the board to make a 10% increase in the railroad assessment of the commission. Pipe lines are assessable by this board in Oklahoma (33 Pac. [2] 615).

As betwen the tax commission and the local assessor the balance was shifted perceptibly in favor of the commission. The tax commission in Colorado was sustained, 30 Pac. (2) 266, in the appointment of an additional deputy assessor although opposed by the county commissioners. In Mississippi the commission's authority to assess electric power plants is limited to those situated in two or more counties. In Wyoming a tie preserving plant owned by a railroad is not ''operative property,'' and hence is assessable by the county assessor. In New Jersey, although the statutes provide for the removal of the assessor by the supreme court, he may also be removed for cause by the director of revenue and finance of the city, 169 Atl. 539.

LEVIES

Most of the legislation affecting tax levies was of an emergency character. In Illinois at least four acts provided for ''pegged levies'' for schools, and one authorized large cities to levy a judgment tax. New York legalized the levies of New York City for 1933 and 1934. Mississippi authorized county refunding bonds and tax levies, as did Iowa for the City of Des Moines. California validated refunding bonds and the necessary taxes of reclamation districts. The adoption in Kentucky of a uniform county budget system and the recodification of school taxes will presumably be permanent. So will the Louisiana constitutional amendment permitting, not to exceed ten years, levies for schools and public works in excess of the present maxima. An unsuccessful bill in Ohio would have imposed a capital levy at rates from 5% on $50,000 to 100% on the excess over $1,000,000.

Assessment.—A West Virginia constitutional amendment defined ownership for tax purposes in case of undivided ownership of land. Louisiana defined ''actual cash value'' for assessment purposes and provided for separate assessment of mortgaged property, to protect mortgages in case of delinquency. Texas regulated the assessment inventories in cities where the fiscal year is other than the calendar year. Virginia repealed its provision relating to the situs of property held in trust. Nex York extended to all districts the provision for setting down the value of land separate from the value of the improvements and specified the deadline date for delivering the roll to the city collector of New York City. Michigan provided for the assessment where a local division is situated in more than one county. Mississippi provided for the assessment of divided property. Massachusetts amended its provision for the assessment of omitted property. Iowa stipulated that the presence of unlisted property in an estate creates a presumption that such property was acquired more than five years previously and amended the provision for deduction under the money and credits tax. In West Virginia it was held (175 S. E. 217), that the privilege of deduction of debts against credits had been repealed by the omission of that provision in the act of 1933.

The courts recognized ''willful'' or ''systematic'' discrimination as cause for invalidating assessments (169 Atl. 489, 174 Atl. 359, 66 Fed. [2] 842, 69 Fed. [2] 171). Railroad assessment was found (68 Fed. [2] 527) improper for disregard of the fact that the conditions affecting the property varied throughout the state. A forced sale, at less than 1/5 of the assessed value was found (169 Atl. 350), not conclusive against the assessment. Income, as affecting capital and assessable value, was recognized as of signal importance, especially during abnormal times (174 Atl. 184). A number of Illinois cases (190 N. E. 82, 190 N. E. 296, 190 N. E. 300), agreed that where the 100% assessment required by law is not attainable, a uniform percentage must be used for all property. The much-bruited re-assessment of 1928 in Cook County was unsuccessfully attacked (190 N. E. 20). A Washington decision (30 Pac. [2] 958), found the tax commission authorized to raise the valuation for state purposes above the local basis, and the county officers bound to extend the tax on this basis.

While property omitted may be assessed when discovered (36 Pac. [2] 292), this rule cannot operate to raise the assessment of property underassessed through failure to consider improvements by assessing the improvements as "omitted property" prior to the subsequent regular assessment, as ruled (152 S. W. [2] 552, 74 S. W. [2] 524; 29 Pac. [2] 615, 29 Pac. [2] 733, 33 Pac. [2] 792, 35 Pac. [2] 908). But the Merchandise Mart of Chicago, on which $22,000,000 had been spent and in which there were 22 tenants within 60 days after the assessment day, could not claim to be unimproved and thereby escape the tax on the improvements.

Indicative of the need for careful listing, the courts found the assessment to be improper (34 Pac. [2] 667, 189 N. E. 278, 192 N. E. 208), where personal property was assessed in a lump sum under a heading of "all other property," rather than being correctly listed under the proper headings of the assessment list. Three cases (153 So. 49, 71 S. W. [2] 365, 74 S. W. [2] 543), required mineral rights to be assessed as part of real property; but New Jersey requires, (170 Atl. 37), separate assessment of land and improvements. New Hampshire water rights are assessable to grantee (168 Atl. 892). Assessments may be made to owner of record, or to owner unknown, where actual owner is not known (172 Atl. 692, 152 So. 197). Two Nebraska cases (252 N. W. 609, 252 N. W. 869), attempted unsuccessfully to increase the assessment during the quadrennial assessment period although no "altered conditions" of the property justifying such increase was shown.

A large amount of litigation involved questions of situs of movable and migratory property. The Kansas law taxing cattle brought into the state for grazing during the summer, after March 1, was held invalid (66 Fed. [2] 351), as being discriminatory in applying only to property of nonresidents. In Texas the situs of buses operating in the state is at the domicile of the owning corporation and not at places where they are kept temporarily incidental to their itinerary. In Oklahoma, oil tank cars owned by a foreign corporation and used in delivering refinery products are taxable on the average number employed in the state and the counties (30 Pac. [2] 692).

EQUALIZATION AND REVIEW

Virginia created boards of equalization for the quadrennial assessment; and Michigan provided for county boards of review. Mississippi provided for appeal and correction of the terms of applications for abatements. Louisiana prescribed the manner of contesting assessments where property is located in more than one parish. An Illinois law permits in effect all taxpayers in Cook County to avail themselves of a 15% reduction granted to certain litigant taxpayers.

CLASSIFICATION

Constitutional amendments permitting classification of property were defeated in Michigan and Texas. The Ohio legislature defeated many bills to modify the 1931 classification, the only change being the shift of tangible personalty from 70% to 65% assessment. A temporary exemption from the recording tax was made in New York. Virginia adopted a general tax law, affecting, among other matters, the tax on intangibles. In Texas the practice of assessing land at 100% and improvements at from 25% to 30% (72 S. W. [2] 361), was held illegal. The New York and Washington forest tax laws were upheld (191 N. E. 770, 31 Pac. [2] 539). In Montana machinery generating electricity takes a 30% rather than a 20% assessment, being not mere "machinery," but "manufacturing machinery" (32 Pac. [2] 8). The tax on intangibles in Arizona was held unconstitutional, but the opinion states that no constitutional bars to classification exists.

EXEMPTION

Homesteads. — Noteworthy among the attempts at exemption is the drive to exempt homesteads. Oklahoma petitioners failed to secure enough signatures to place such a proposal on the ballot. Florida approved an amendment to exempt homesteads not in excess of $5,000. Louisiana amended its constitution to exempt homesteads not in excess of 160 acres, from state and parish taxes, to the extent that losses in revenue from such exemption are re-imbursable from a property tax relief fund to be created by the legislature. Mississippi exempted homesteads to the extent of $1,000 and cattle for two years.

Personal and Household.—Minnesota amended the constitution to permit the legislature to exempt household goods and farm machinery, which formerly was enjoying a low assessment. An Arizona proposal to amend the constitution to permit the exemption of $2,500 of property was barred by the courts. The present exemption of $2,000 to veterans and widows to be valid must be claimed (30 Pac. [2] 840), under a 1929 law. In Florida the $500 personal exemption is deductible (151 So. 524), from the total assessment of household goods and personal effects. Four cases (175 S. E. 497, 153 So. 513, 31 Pac. [2] 840, 70 S. W. [2] 49), in as many states sought exemptions for property acquired with money paid to veterans by the United States, although it seems well settled that such property is taxable.

Industrial. — Louisiana amended the constitution to permit, optionally with the localities, exemption of motor vehicles from state, parish, and special property taxes. Minor changes were made in New York and Virginia. Michigan in part exempted farm implements from property taxes, and RFC mortgages from the mortgage and lien tax. Massachusetts exempted savings deposits to savings banks and departments when invested in HOLC securities. The Florida exemption may be claimed (151 So. 488), for steel manufacturing, where manufactures are composed of 98.5% steel. The Alabama optional exemption of 1927 is applicable to factories (155 So. 616). The Mississippi exemption of securities, contingent upon interest of 6% or less, cannot be secured by subterfuges such as exactions for ''investigation'' (151 So. 754).

Public Property. — Property conveyed to the University of Illinois, whose proceeds inure to a fund for making loans to certain students, is taxable (192 N. E. 243) and (159 N. E. 811). In North Dakota property of a municipality leased to a private utility corporation is taxable as to the interest of the lessee (252 N. W. 619). In Tennessee lands granted by statute to the United States for national park purposes, contingent upon subsequent acquisition by the United States are taxable where still held by private owners (68 S. W. [2] 478).

Fraternal.—In Illinois property of a fraternal benefit society used as a home for sick, disabled and destitute, is exempt as being for a charitable purpose (188 N. E. 448). In South Dakota the residence of the secretary of a fraternal order, owned by the order, is exempt as being for ''charitable and benevolent purposes'' (252 N. W. 626). More liberal is the Oklahoma rule (33 Pac. [2] 507), that a fraternal society building is exempt, though rented in part to others, so long as the rent is used for lodge purposes. In Virginia property of a Masonic lodge is exempt only in so far as it is used for lodge purposes, and the part so used can be segregated (174 S. E. 846). In Connecticut, however, a Masonic building is not exempt (174 Atl. 301), as a ''house of religious worship.''

Religious and Charitable Uses.—In Illinois, under strict construction, a school building owned by a congregation and used in teaching backward children is not exempt (191 N. E. 282), as used for ''school and religious purposes.'' In Washington exemption may be claimed for such property (30 Pac. [2] 381), where it may be segregated from the taxable part. Under the more liberal construction of Colorado, the property of an incorporated Bible Institute is exempt, (30 Pac. [2] 870). In New Hampshire property devised to a church conference and used as a residence of a retired minister is exempt (173 Atl. 805), as used for a ''religious purpose.'' Exemption of property on account of a charitable use was claimed in numerous cases involving the charitable extent of such property. The most liberal construction was that of Oklahoma in (32 Pac. [2] 928) in which oil refinery, railroad, cotton factory, iron foundry, property, and producing oil wells were exempt so long as the earnings are used by a charitable organization solely for purposes of a home for orphans and widows.

TAX LIMITS

The tax limitation movement made some headway, although it scored more defeats than victories. Arkansas approved an amendment to the constitution preventing the legislature from increasing any taxes levied except upon approval by the electorate or, in emergencies, by three-fourths vote of the legislature. Washington defeated a proposed amendment to authorize the legislature to limit and control local levies and assessment but approved an initiative measure extending the 40-mill limitation (on a 50% assessment basis) for another two years. Oregon defeated an amendment which would have reduced tax rates progressively to 15 mills (on a 50% assessment basis) in 1940. In California the so-called syncro-tax measure, which would have replaced all present taxes by a single tax on gross receipts, was barred from the ballot by the Supreme Court. Ohio and West Virginia adjusted their budgetary procedure to constitutional rate limits. The latter tested its 1933 statute allocating the aggregate levy (175 S. E. 859). In Indiana the action of the county adjustment board was upheld (190 N. E. 752), in levying 15 mills in an emergency.

PERMANENT COLLECTION MEASURES

Little progress was made in adjusting the collection machinery and rules in the interest of the public treasuries. Measure defining the lien, prescribing forms, fixing dates and procedure, and otherwise regulating the collection of property taxes, delinquent or not, were passed in Iowa, Massachusetts, Michigan, Mississippi, New Jersey, New Mexico, Rhode Island, South Carolina, Virginia, and West Virginia. New Jersey authorized certain townships and towns to adjust past due taxes. A new Ohio law permits county treasurers to collect rents on delinquent property. It was attempted unsuccessfully in Rhode Island to extend the lien for real property taxes until the tax is collected, a matter of some importance in view of the holding in Parker *v.* MacCue that a lien may lapse in two years under certain conditions. A Massachusetts law regulates the lien in case of faulty title. Louisiana provided for quieting tax titles after three years. South Carolina authorized the sale of delinquent property upon consent of the county. Michigan made provision for listing and publication of delinquent taxes. Mississippi fixed the time of payment of all property taxes. The importance of this matter can hardly be overestimated in view of the enormous amount of delinquency and the multitude of cases litigating various phases of the collection procedure.

PAYMENT

Michigan made HOLC bonds acceptable in payment of taxes. New Jersey made county and municipal bonds acceptable in payment to the respective districts. In Ohio taxes may be paid in liquidated claims against political subdivisions. Arkansas county treasurers must accept county warrants from redemptioners of delinquent property (65 S. W. [2] 554). The Arizona Act of 1933 permitting payment of taxes, delinquent as July, 1933, in ten annual installments without interest or penalties was upheld (30 Pac. [2] 841). A similar law of Texas is not applicable to prior suits for collection (68 S. W. [2] 519). In Nebraska the delinquency date for the second half was fixed (253 N. W. 429).

RELIEF MEASURES

One or more laws permitted the payment of delinquent taxes without interest and penalties in Arkansas, Louisiana, Mississippi, New Mexico, and Virginia. New York reduced the penalties in Suffolk county. South Carolina reduced the penalties on 1933 taxes to 3% upon payment before May 1, 1934. California permitted redemption of lands sold for taxes by payment of delinquent taxes in a ten-year period. Provisions for installment payment was made in Kentucky, New York, Rhode Island, Virginia, and West Virginia. Action to collect special assessments in California was postponed till after Feb. 28, 1935. Similar extension was provided in Illinois for county taxes and drainage district assessments. Two measures in Louisiana provide for the extension of collection, and in South Carolina the collection of 1933 taxes was postponed. Measures extending the time and fixing the date of redemption were passed in Iowa, Louisiana, Massachusetts, Mississippi, and West Virginia. The latter state extended the period of discount for prompt payment of taxes, as did Illinois. West Virginia also authorized the sheriff to collect municipal taxes. In Florida four cases (151 So. 1, 154 So. 166, 154 So. 848, 156 So. 710), restricted the application of the moratoria of 1931 and 1933. In Oklahoma the governor exceeded his authority in remitting interest on delinquent taxes (34 Pac. [2] 597), as he probably also did later in dispatching state militia to prevent a number of county treasurers from selling property for taxes. A number of cases also established that, in the respective states, interest and penalties do not accrue on delinquent taxes, or on back taxes. In Kentucky (68 S. W. [2] 21), and Minnesota (253 N. W. 529), the laws extending the redemption period were upheld.

CORPORATION AND BANK TAXES

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CORPORATION TAXES

Income Taxes.—The Revenue Act of 1934 continues the corporate income tax at 13¾%, the capital stock tax at 1%, and the excess profits tax at 5%. The privilege of filing consolidated returns is confined to railroad corporations which, if they elect to file, pay 2% additional. The penalty tax, except for personal holding companies, for improperly accumulating surplus for purposes of tax avoidance, was reduced from 50%, as under the 1932 law, to 25% of the adjusted net income not in excess of $100,000 plus 35% of amounts in excess of $100,000. The surtax on personal holding companies is 30% of the undistributed adjusted income in excess of $100,000 plus 40% of amounts in excess of $100,000. The remodeled Iowa tax system includes a corporate income tax of 2%. Louisiana amended the constitution to provide for a corporate income tax of 4% with a deduction of $3,000, effective for 1935.

Franchise Taxes.—The Illinois tax on the corporate franchise tax and the initial license fees were amended. Louisiana increased the franchise tax rate to $1.50 per $1,000, the rate having been fixed at $1.25 per $1,000, in an earlier act of the regular 1934 session. The new corporation franchise tax of Mississippi is at the rate of $1 per $1,000 of capital. A Federal court upheld (65 Fed. [2] 934), the Texas franchise tax apportioned on that part of total stock, surplus, and profit plus long term bonds represented by gross receipts from local business. Two cases (67 S. W. [2] 35 and 68 S. W. [2] 777) involved the Kentucky franchise tax. The former held that the proportion of the franchise on which a bus company was liable in Kentucky is measured by the proportion of its buses regularly employed. In two Louisiana cases (152

So. 312, and 156 So. 463), it was attempted unsuccessfully to have the franchise tax law of 1932 held invalid because the tax is collected by the Secretary of State rather than by the sheriffs and tax collectors, and in the latter case because it exempted corporations whose capital stock is held by banks.

Exemptions.—New York corporations engaged in ocean commerce with foreign countries are exempt from the business corporations tax until 1942, and provision is made for dissolution of delinquent corporations failing to pay annual franchise tax during three consecutive years. Virginia exempted insolvent corporations from franchise and registration taxes. In three Pennsylvania cases it was attempted to escape the gross receipts and the capital stock tax. It was held (168 Atl. 318) that the 8-mills gross receipts tax on electric light companies applies to the gross receipts from sales "for resale" and to gross receipts from the sale of appliances. It was held (173 Atl. 633) that the business of cut stone contracting is not manufacturing so as to entitle the corporation to exemption from the capital stock tax. On the other hand (according to 174 Atl. 395) the production of ready mixed concrete is manufacturing and entitled to this exemption.

Insurance Companies.—The tax on foreign insurance companies in South Carolina was equalized with that of domestic companies. In Mississippi, on the other hand, domestic insurance companies were exempted from all but privilege, income and sales taxes. The United States Supreme Court held, in Concordia Fire Insurance Company *v.* Illinois, that a tax on net receipts on the business in Illinois for 1927 was invalid for not having been scaled down to the assessment ratio used for property assessments, being violative of due process. A dissent urged that this was an excise tax and, therefore, not subject to the uniformity rule applicable to property taxation.

Other Taxes.—New York Corporations organized by Supreme Court order to protect guaranteed mortgage investments are exempt from the organization tax, and pay in lieu thereof a tax of $10, and investment companies organized to make advancements to owners of mortgage certificates or investments guaranteed by corporations organized under the insurance law pay a sole tax of $25 per year. Massachusetts provided for a minimum excise tax on corporations dealing exclusively in securities as principal and not as broker, and modified the taxation of certain classes of foreign corporations.

Administrative Changes. — New Jersey permits railroad and canal companies to pay taxes during litigation and receive credit against future taxes if successful. One New York law provides for the determination of the dividend rate of a transportation or transmission corporation without stock of nominal or par value, for franchise tax purposes; another provides for the allocation by the tax commission of corporate activities within the state when the segregation of assets does not accurately reflect income earned; a third provides for consolidation of a domestic with a foreign stock corporation and for the organization tax of the new corporation, and a fourth modifies the provision for secrecy of tax officials in relation to the franchise tax reports. Massachusetts required gas and electric companies engaged in the transmission of intelligence by electricity to make additional annual returns, and adopted rules for the determination of the gain or loss involved in dealings in certain shares of stock. Louisiana modified the gross receipts tax on public utilities.

BANK TAXES

The 1934 legislation affecting bank taxation was limited. Negotiations of the committees of the American Bankers Association and of the Association of States for the Taxation of National Banks for an agreement on an alternative method of taxing banks have as yet produced no change in the Federal law. The new Iowa corporate income tax was not made applicable to banks, which continue to be taxed as before, on the shares. Louisiana adopted a constitutional income tax on all corporations including banks, at a rate of 4%, with a $3,000 deduction. Virginia passed an act providing for the taxation of branch banks by municipalities, and another increasing the bank fees. Ohio authorized the tax commission to reassess capital stock and deposits of banks in receivership. New York amended the tax law with reference to the franchise tax on savings banks, the change providing for the basis of the assessment.

Litigation also was limited, and deciding few important matters. In Arizona the intangible tax law, which was applicable to banks shares, was held unconstitutional, and the banks are expected to be required to pay the income tax on 1933 income. In an interesting Mississippi case (156 So. 599), where surplus is exempt from the share tax, surplus must be real and not a mere book surplus, as in this case where losses had wiped out the surplus. It must be an excess in the aggregate value of all assets over all liabilities, including capital. Idaho credit associations making loans to members only, on chattel mortgages, are taxable, as being in competition with banks, the exemption accorded to building and loan associations not being applicable (31 Pac. [2] 267). Puerto Rico (according to 71 Fed. [2] 13), has no authority to tax a national bank doing business there by means of branches. In Alabama (155 So. 305), the excise tax measured by income is not unconstitutional because it is levied at rates in excess of the *ad valorem* rate limited by the constitution. In Georgia (172 S. E. 845), national bank share dividends may not be included as taxable income where national bank shares are subject to the *ad valorem* tax, as property in general.

ESTATE AND INHERITANCE TAXES

By Harold R. Enslow

Department of Taxation and Finance of the State of New York

RESUME

Before outlining developments in 1934, in the estate and inheritance tax field, it will be well to survey briefly the situation as it stood at the first of the year. At that time all of the states, with the exception of Nevada, had either inheritance or estate taxes. Five states had estate taxes only. Twenty-three states had only inheritance taxes. Thirteen states had inheritance taxes with additional estate taxes operative in order to take up the credit allowed under the Federal estate tax of 1926.

On Jan. 1, 1934 only 13 states had not adopted legislation enabling them to take advantage of the Federal credit provision. Thirty-nine states had arranged for reciprocity in the taxing of intangible personalty of non-resident decedents. Nine states at that time did not have reciprocity legislation. Thirty-five states had enacted provisions concerning gifts made in anticipation of death.

The 1926 Revenue Act remained the basic legislation for Federal estate tax purposes but in 1932 an additional tax had been enacted.

THE REVENUE ACT OF 1934

Estate Tax.—The Revenue Act of 1934 was signed by the President and became effective, 11:40 A. M., May 10. The schedule of rates of additional estate tax imposed by the 1932 Act was amended. The rates on blocks below $50,000 were not changed, but a much more severe schedule was enacted for blocks above $50,000, ranging to 60% of that portion of the estate in excess of $10,000,000, as compared to the 1932 maximum of 45%.

A number of administrative changes were made. A detailed outline of such changes is beyond the scope of this account but attention may be called to a provision making all residents of the United States and all United States citizens without reference to place of residence fully subject to Federal estate taxes on all property except real estate outside the United States. The provisions relative to deductions for charitable purposes were amended. The period for petitioning the Board of Tax Appeals concerning deficiencies was increased from 60 to 90 days. The period for bringing suit to recover taxes erroneously refunded was extended to five years and certain other clarifications in this respect were made. The Commissioner of Internal Revenue was given greater power in the examination of books, records and other data for the purpose of ascertaining tax liability. Certain provisions were made for the release of loans on particular property by payment to the collector of its market value. Certain other administrative changes were also incorporated in the legislation.

Gift Tax.—The rates of Federal tax on gifts were revised. Rates applicable to gifts smaller than $50,000 remained unchanged, but on gifts larger than that amount the schedule was made heavier, ranging to 45% on gifts larger than $10,000,000. The maximum rate under the 1932 schedule was 33½% on gifts larger than $10,000,000.

STATE LEGISLATION

Exemptions. — Mississippi, New Jersey and Virginia made certain changes in exemptions granted under their death taxes. The exemption under the Mississippi estate tax was reduced from $100,000 to $50,000 and became effective Feb. 21, 1934. The New Jersey exemption for Class B heirs was increased to $5,000 from $500 effective July 1. Grandparents were transferred from Class D to Class A effective the same date. Virginia reduced exemptions on Class A heirs from $10,000 to $5,000 and on Class B from $4,000 to $2,000. This reduction in exemptions is to be effective only during the period from June 19, 1934 to Dec. 31, 1936, inclusive.

New Rates.—Montana doubled the rates of the inheritance tax so that they now range from 2% on the smallest block for Class A to 32% on the largest block of Class D beneficiaries.

Virginia Gift Tax.—Virginia became the third state to bolster the death tax with a gift tax by adopting a tax applicable to gifts made on or after June 19, 1934. Gifts of $5,000 and under to Class A donees are exempt. The schedule of rates on Class A gifts ranges from 1% on those from $5,000 to $50,000 to 5% on those in excess of $1,000,000. An exemption of $2,000 is granted Class B donees and the schedule of rates runs from 2% on gifts of $2,000 to $25,000 to 10% on gifts of $500,000. Gifts to Class C donees are exempt to the extent of $1,000. Gifts of $1,000 to $25,000 are subjected to a tax of 5%. The succeeding blocks are taxed at 7%, 9% and 12% respectively, and the maximum rate of 15% applies to gifts larger than $500,000.

Reciprocity.—Reciprocity in interstate inheritance tax relations was furthered in 1934 by the enactment by Alaska of reciprocal exemption of intangible personal property held in non-resident estates. Mississippi provided for reciprocal enforcement of domiciliary death taxes for non-resident estates, bringing the number of states having this type of legislation up to eleven. The others are Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island and Virginia.

Federal Credit for State Taxes.—New Jersey took advantage of the so-called 80% credit provision of the Federal estate tax by subjecting resident estates to an estate tax equal to the difference between 80% of the gross Federal estate tax imposed by the Revenue Act of 1926 and the aggregate amount of all estate, inheritance, legacy and succession taxes paid to any state or territory. This new tax in New Jersey is made applicable to all resident estates where the decedent died on or after June 22, 1934 and also to the estates of those dying after Feb. 26, 1926 if the estate was still in process of settlement on June 22, 1934.

Court Decisions, Minor Legislative Changes and Administrative Rulings.—Many of the states made minor legislative changes and many of them, notably Maryland, issued a number of new administrative rulings and/or announced opinions by their attorneys general. Limited space will not allow mention of these nor of the numerous interesting decisions of various courts. However, mention should be made of the important case of City Bank Farmers Trust Company, Executor under will of Thomas B. Clarke, deceased, appellant *v.* William A. Schnader, Attorney General of the Commonwealth of Pennsylvania which concerned the taxable situs of certain portraits which had been loaned to a museum in Pennsylvania by a non-resident. It was held that the power to regulate the transmission, administration and distribution of tangible personal property rests exclusively in the state in which the property has an actual situs, regardless of the domicile of the owner; that the location of certain portraits (in this case) in Pennsylvania was not merely transient, transitory or temporary but it was fixed in an established abiding place in which they remained for a long period of time, and that they became subject to the taxing power of the state. It was said that the owner of the portraits, by sending them into Pennsylvania and by his omission to have them returned to New York and his lack of definite intention ever so to do, failed to maintain an actual situs for them in New York and created one for them in Pennsylvania.

NEW YORK CITY ESTATE TAX

One of the most interesting developments of the year was the adoption by New York City of an estate tax which became effective Dec. 5. This tax was one of several measures designed to raise relief funds and called for payment to the city of 40% of the amount of the New York State estate tax by residents of the city and by residents of the State of New York owning property in New York City.

AUTOMOBILE TAXES

By Beulah Bailey

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REVENUE YIELD

Registration Fees.—In 1933 the total state revenue from registration fees and gasoline taxes was $820,889,786. In 1932 it was $837,320,749. The decrease was due to a decrease in the revenues from registration fees. In 1932 the revenue was $324,273,510 and in 1933, $302,694,065. It is probable that in 1934 the revenue will be still less as there were so many decreases in registration fees in 1933 which decreases would reflect in the 1934 receipts.

Gasoline Return. — The gasoline revenues present a different picture. In 1932 the net amount received from state taxes was $513,047,239 and in 1933, $518,195,721. In 1932, 14,250,173,296 gallons of gasoline were taxed and in 1933, 14,224,321,270 gallons. The average tax rate for 1932 was 3.60 cents and for 1933, 3.65 cents. Federal revenue for the fiscal year ended June 30, 1934 was $203,000,000.

REVENUE DISTRIBUTION

The chief agitation today in regard to the gasoline tax and motor vehicle registration fees is the distribution of revenue. With revenues from other taxes decreasing and the revenue from the gasoline tax remaining stable there is a great tendency to divert the money. In 1932, $47,941,483 of the gasoline tax revenue was spent for other than highway purposes, and in 1933, $55,742,173. In 1932, $35,506,810 of the registration fees were spent for other than highway purposes and in 1933, $44,123,358, an increase of 17 per cent in the former instance and 25 per cent in the latter. This question was the subject of referendum in several states. Colorado voters approved an initiated measure restricting the revenue from motor vehicle registrations and the gasoline tax to expenditures for highway purposes only. Colorado had a 5 cent tax instead of 4 cents from Feb. 1 to Aug. 31, 1934. The revenue from this was used for relief. The people of Michigan and Ohio on the other hand rejected initiated measures which would have limited gasoline tax monies to highway uses. Illinois during 1934 diverted one-third of the gasoline tax revenue to education. The people of Louisiana approved a constitutional amendment which would allocate to education a ½ cent tax on gasoline.

Many of the states without statutory authority diverted substantial shares of motor vehicle and gasoline revenues to the general fund. This really would seem a sensible thing to do as in many states the highways did not require all the dedicated funds. If the money were not diverted, it would probably have meant an additional tax levy on real property.

RATES

Gasoline Tax Rates are still being increased. In Arkansas the tax is 6½ cents, formerly 6 cents. Colorado and Michigan defeated initiated measures which would have limited the gasoline tax rate to 3 cents in Colorado and 2 cents in Michigan. New Orleans was authorized to levy a 1-cent gasoline tax in addition to the state tax, the revenue to be used for unemployment relief. Delaware places a $2 license fee on the retailer.

Trucks and Trailers. — Motor vehicle rates are ever changing. This year the tendency is to decrease rather than increase them. Arkansas has increased the registration rates on all trailers and semi-trailers of over ½ ton capacity, the range is from $3 to $200. The fee for motor trucks of 1½-ton capacity is increased from $18 to $35. The excise tax on motor carriers was repealed and the fee for passenger carriers was changed from $2.50 per passenger capacity to 45 cents per h.p., plus $1.50 per cwt. Cars more than five years old pay only half the registration fee; four years was formerly the age of this partial exemption.

Passenger Cars.—In Iowa the minimum fee for passenger cars has been reduced from $10 to $7. Kentucky has changed the fees on passenger cars from so much per h.p. and cwt., to a flat rate of $6 for less than 20 h.p.; $7.20 for 22-32 h.p.; $12 for 32 h.p. or more. The fees for passenger carriers for hire have been decreased, but the excise tax now applies to the small vehicles. The rate is ¼ cent per mile for vehicles under 5,000 lbs. and ½ cent per mile on all over 5,000 lbs. In Louisiana constitutional amendments were accepted permitting lower minimum rates and exemption of motor vehicles from local taxation. The rate per cwt. for passenger cars has been decreased in Michigan from 55 cents to 35 cents; an initiated measure limiting the rate to that amount was defeated. In Missouri the fees have been reduced from a range of $7.50 per 12 h.p. or less to $22.50 for 36 to 48 h.p., to a range of $5 to $20. In Montana there are now only two graduations for passenger cars, a flat tax of $5 on those weighing 2,850 lbs. or less and $10 for all over; formerly there were three graduations at $10, $15 and $25. Jitneys in New Jersey are now subject to a ½ cent per mile excise tax. Virginia has reduced the passenger car fees from 70 cents per cwt. and a minimum of $12.25 to 40 cents per cwt. with an $8 minimum. The minimum fee for motorcycles is now $3; it was formerly $5.00.

MILEAGE TAX DECISION

The Jones County Chancery Court of Mississippi held unconstitutional the 1934 law which levied a mileage tax on buses and trucks. This decision will probably be appealed to the Supreme Court.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL HIGHWAY USERS CONFERENCE, National Press Building, Washington, D. C.

NEW ENGLAND STATE TAX OFFICIALS ASSOCIATION, Room 237, State House, Boston, Mass.

NORTH AMERICAN GASOLINE TAX CONFERENCE, 844-46 Consolidated Bldg., Indianapolis, Ind.

WESTERN STATES TAXPAYERS ASSOCIATION, Denver, Col.

DIVISION VIII

PUBLIC RESOURCES AND UTILITIES

FEDERAL SURVEYS AND MAPS

By J. H. Wheat

Secretary, Federal Board of Surveys and Maps

BOARD OF SURVEYS AND MAPS OF THE FEDERAL GOVERNMENT

The Board of Surveys and Maps of the Federal Government was created by Executive order of Dec. 30, 1919, for the purpose of making recommendations to the several executive departments or to the President, in order to coordinate all map-making and surveying activities of the Government. Twenty-four Government services are represented on the Board. The Advisory Council to the Board is composed of representatives from 21 associations and societies of engineers, geographers, geologists, etc., interested in surveys and maps. The map information office of the Board was established in 1920 for the purpose of collecting, classifying, and furnishing to the public information concerning all map and survey data available in the several Government departments and from other sources. Meetings of the Board are held on the second Tuesday in each month except June, July, and August. At these meetings, all of which are open to the public, matters of general mapping interest are discussed and reports of committees are presented and acted upon.

MAPPING AND SURVEYING SERVICES

The Geological Survey is the most productive of the mapping organizations, as it is engaged in making the basic topographic map of the entire area of the United States. It is also engaged in making a geologic map of the United States and Alaska, involving both topographic and geologic surveys. In conducting investigations relating to surface and underground waters, classifying the public lands, and supervising the engineering phases of mineral leasing, the resulting maps are incidental.

The Coast and Geodetic Survey is one of the oldest surveying bureaus of the Government. It is charged with the survey of the coasts of the United States and its possessions and with the publication of navigational charts of those regions. It is also charged with the determination of geographic positions by astronomic observations and by triangulation and traverse, and with the determination of elevations by spirit leveling, in the interior of the United States and Alaska.

The General Land Office is the oldest surveying and mapping bureau of the Government (see The American Year Book, 1929, p. 196). This Bureau makes rectangular surveys of the public lands, which are published in the form of township plats, and issues annually a wall map of the United States showing the extent of the public surveys, national parks, national monuments, national forests, Indian, military, bird, and game reservations, and other useful information. It also issues maps of the 29 public-land states, and of Alaska and Hawaii.

The Hydrographic Office is charged with topographic and hydrographic surveys in foreign waters and on the high seas, and in the preparation and printing of maps and charts required in navigation on those waters. It is also charged with the preparation of aviation charts and naval air pilots for service use.

The Corps of Engineers makes special topographic maps of areas of military importance and has made topographic maps of a few quadrangles not surveyed by the Geological Survey, besides revising some of the older topographic maps of the Geological Survey.

The Forest Service publishes general geographic maps of national forests and topographic maps of portions of them.

The Bureau of Reclamation publishes topographic maps of many of the Federal irrigation projects.

The Office of Indian Affairs has mapped portions of the Indian reservations.

The Mississippi River Commission has published a series of maps showing the profile of the river and the topography along the shores, extending from the source to the mouth of the river.

The International (Canada) Boundary Commission has published a series of topographic maps extending approximately one mile on each side of the United States-Canada boundary line and along the east boundary of Alaska.

The Lake Survey publishes hydrographic charts of the Great Lakes for navigational uses.

The Topography Branch of the Post Office Department compiles post route maps for all the states, Alaska, Hawaii, the Samoan Islands, Guam, Canal Zone (Panama), Puerto Rico, and the Virgin Islands. It also compiles rural free delivery maps of many of the counties in each of the states.

The Bureau of Chemistry and Soils publishes maps which show the character of the soils in the areas covered. A single soil map will usually cover the area of a county.

The Bureau of Public Roads publishes maps of the United States showing the Federal-aid system of highways and also maps of some of the states carrying more detailed information of the same character.

TRIANGULATION AND LEVELING

The plan for the standard topographic mapping of the United States calls for a complete network of triangulation based on the standard (North) American datum. The geographic position of Meade's Ranch, Neb., is the accepted datum for the North American continent, as the United States, Canada, and Mexico have adopted it and have made their position adjustments to conform to it. The plan also calls for spirit level elevations based on mean sea level. Horizontal and vertical control work of this character accomplished during the past year is given in the summary of the year's work.

AERIAL PHOTOGRAPHY

Aerial photographs are of two general types—those taken with single-lens aerial cameras and those taken with multiple-lens cameras. There are single-lens aerial cameras of various focal lengths as well as multiple-lens type cameras having different numbers of lenses and with different focal lengths. In general, multiple-lens aerial photographs cover larger areas with each assembled exposure than a single print or exposure with a single-lens camera at the same altitude. The cost per square mile of aerial photographs on any given scale is correspondingly less when taken with a multiple-lens camera than with a single-lens camera. There is also a decided advantage in the compilation of data from multiple-lens photographs over those taken with single-lens cameras because of the greater area covered and the relative ease of expanding the ground survey control by graphic methods. This is generally true if the single-lens photographs are of the ordinary type. However, the Geological Survey has experimented very successfully with single-lens photographs taken at a high altitude with a wide angle lens. A lens of 6-inch focal length at an altitude of 18,000 feet will give a scale of 1:36,000. On a 7 by 9 inch plate the gross area covered is about 25 square miles. In using these high altitude photographs, enlargements to the mapping scale of 1:20,000 are made from the negatives and these enlargements have been used very successfully in the compilation of planimetric base maps.

Aerial photographs have been used more extensively than ever before as an adjunct to topographic mapping. Contracts for aerial photography in the Tennessee Basin were awarded, the area to be covered approximating more than 40,000 square miles. The Soil Erosion Service of the Department of the Interior contracted for aerial photography of more than 30,000 square miles. The Forest Service contracted for aerial photography covering the Superior National Forest. The use of the aerial camera in chart work by the Coast and Geodetic Survey steadily increased, base maps of coastal areas being made and the topography shown on the charts brought up to date by this method, which makes possible surveying economically the almost impenetrable swamps and intricate waterways of our South Atlantic States, a large part of which was impracticable by the old ground methods. The Coast Survey has also prepared designs for a 9-lens camera. Instead of separate films for each lens, as is now required for the 5-lens camera and the resulting five photographs for each exposure assembled, fitted and mounted, the proposed 9-lens camera is designed for the rays of light to be exposed from all nine lenses projected to a single film, resulting in one 35-by-35-inch photograph.

SURVEYS AND RESURVEYS OF GENERAL LAND OFFICE

Surveys and resurveys in 1934 were made under 244 groups in 23 states and Alaska. Such work as can be measured on a quantity basis equaled 35,970 linear miles, or 6,290,089 acres, surveyed. Approximately 2,300,000 acres of public land were surveyed and 1,300,000 acres resurveyed. Surveys for the Forest Service were 1,200,000 acres of original surveys and 916 acres of resurveys. Resurveys amounting to 527,800 acres were made for the Reclamation Bureau. Lesser areas were surveyed for the National Park Service, Geological Survey, War Department, Office of Indian Affairs, and Federal Power Commission. Nearly all of Alaska and 133,562,439 acres within the United States proper are yet unsurveyed.

GEOLOGICAL SURVEY

The area mapped topographically during the year amounted to 21,534 square miles. The total area now mapped, exclusive of Alaska, is 1,394,266 square miles. Horizontal and vertical control completed consisted of 14,376 miles of spirit levels, and 7,526 miles of transit traverse. Triangulation stations occupied totaled 669. At the request of the Bureau of Public Roads the preparation of a transportation map of the United States was begun. The plan provides for a series of 439 rectagular sheets on the uniform scale of 1:250,000 covering the entire country, to be issued in state units. The maps will show all routes of travel and transportation by land, water, and air. Aerial photographs were furnished by the Army Air Corps covering 7,961 square miles, and by commercial firms covering 23,522 square miles, for use in the compilation of topographic base maps both with and without contours.

BUREAU OF CHEMISTRY AND SOILS

Soil surveys during the fiscal year ending June 30, 1934, amounted to 21,318 square miles of agricultural lands in 27 states, including surveys in Puerto Rico. The total area mapped and classified according to soils to date is more than 1,520,000 square miles. These soil surveys are very valuable to the farmers, as the maps and reports assist them to make the best use of their land. They also furnish an inventory of national soil resources, of great value to the Government.

FOREST SERVICE

The Forest Service during the fiscal year ending June 30, 1934, compiled and had published for official use 17 quarter-inch scale maps, 17 half-inch scale maps, and 3 one-inch scale maps of individual national forests. There were also prepared and published 5 maps to accompany Presidential Executive orders, and 3 U. S. Geological Survey quadrangles showing in color tints the vegetative types and listing the various species. Scattered areas totaling approximately 2,300 square miles of the national forests in Western states were mapped to the accuracy and scale required for administrative purposes.

HYDROGRAPHIC OFFICE

The Hydrographic Office conducted aerial photographic surveys on the west coast of Panama and west coast of Costa Rica, utilizing a 5-lens camera, in conjunction with the hydrographic surveys being carried out by the Navy in those waters. It is contemplated to continue the aerial survey of the east coast of Central America as conditions warrant. The triangulation of the Gulf of Panama survey completed by the U. S. Navy in 1933 was extended westward as far as Burica Point, Costa Rica. Hydrographic surveys in the area between Burica Point and Parida Islands, and in the area between Cebaco Island and Marioato Point, covering over 3,500 square nautical miles, were completed.

COAST AND GEODETIC SURVEY

The work of the Coast and Geodetic Survey in hydrography, topography, and geodetic triangulation, reconnaissance, and leveling more than doubled that of the previous fiscal year. Topography of 14,877 miles of shore line was completed. Triangulation included 7,440 miles of first-order work, 1,080 miles of second-order, and 1,969 miles of coastal triangulation. First-order leveling totaled 16,153 miles, and second-order totaled 28,670 miles. The compilation of airway maps for the Bureau of Air Commerce, Department of Commerce, was continued by the airway mapping section of the Survey. Twenty-five sectional airway maps are now available of the 87 which will cover the United States. Seven new sectional airway maps were published, and 35 new editions and 8 strip maps were revised.

STATE GEOLOGICAL SURVEYS

By Arthur Bevan

Secretary, Association American State Geologists;
State Geologist, Virginia

GENERAL

Mineral resources are a vital necessity of our modern civilization. As an aid to the development of their varied mineral resources, 35 states had active geological surveys during 1934-1935. Available appropriations during this fiscal year were approximately $745,150. This amount was increased about $204,950 by the U. S. Geological Survey and by state, county, and local organizations and individuals cooperating with state surveys, making about $950,100 which was devoted to the inventory and development of state mineral resources. In addition, PWA allotments were made for the study of mineral resources in cooperation with state surveys. Approximately 79 geologists and 45 other technical workers were employed full time and 130 geologists and 52 other workers part time on 397 state survey projects, including mineral resource, geologic, topographic, soil survey, stream gaging, and miscellaneous projects. About 200 technical reports and maps were prepared for publication or published during the fiscal year.

BASIC GEOLOGY*

California.—Study of the geology of the Elizabeth Lake quadrangle; making geologic map of State.

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*To conserve space, projects under each classification are listed without description. Unless indicated, projects are in progress. Details are available from the respective State Geologists.

Colorado.—Cooperative reports on structure of the Sangre de Cristo Range and Huerfano Park area and on Paleozoic and Mesozoic stratigraphy.

Florida.—Studies of well samples and petrographic studies of sands, marls and other sediments.

Georgia.—Study of the crystalline area; report completed on the Pine Mountain district.

Illinois.—Petrology of the mineral constituents of coal, lithologic and botanical constituents of Illinois coals; review of literature on the composition and constitution of coal; petrology of Illinois clays; Pennsylvania stratigraphy; Pennsylvanian paleontology; ostracods of the Chester series; paleobotany of the Pennsylvanian system; Pleistocene system; constitution of Wisconsin drift; subsurface studies; areal investigations on the Barrington - Elgin - Geneva, Beardstown-Chandlerville-Manito, Buda, Carlinville, Chicago, Galesburg-Monmouth, Oregon, Quincy-Liberty, Streator, and Wilmington areas; annual economic survey and statistical review of the State's mineral industry.

Iowa.—Pleistocene geology, Pennsylvanian stratigraphy and coals, subsurface geology and ground-water supplies; report on the geology of Adams, Greene and Calhoun counties.

Kansas.—Shoestring sands of Butler and Greenwood counties; Cretaceous paleontology of Kansas; geology of Riley and Geary counties; Big Blue series of Kansas; reclassification of Pennsylvanian and Permian rocks; State geologic map; completed study of the geology of Wyandotte, Johnson and Miami counties.

Maryland.—Study of rock floor under Baltimore, variation in depth of overburden, and its influence on the cost of building operations.

Michigan.—Studies of sand dunes and of insoluble residues; reports on Alpena, Chippewa, and Schoolcraft counties (summary reports published).

Minnesota.—Stratigraphy of southern part of State.

Mississippi.—Reprinted *Bulletin 20, Basic Geology*, by E. N. Lowe.

Missouri.—Studies of insoluble residues and related stratigraphy of Paleozoic rocks; completed revision of Cretaceous-Tertiary geology of southeast Missouri.

Montana.—Studies and reports on Upper Mississippian and Pennsylvanian stratigraphy and paleontology in central and southern Montana; paleontology of Lower Paleozoic formations of northwestern Montana.

Nebraska.—Studies of a geologic section of the Hartville, Wyoming, area; zonation of the Ogallala formation; Pleistocene formations.

New York.—Geology of the Catskill, Clyde and Sodus Bay, Indian Lake, Randolph, Russell, Santa Clara, and Schunemunk quadrangles; completed Studies of the Coxsackie and Thirteenth Lake quadrangles.

North Carolina.—Completed report on the geology, rocks and minerals of the State.

Pennsylvania.—Devonian and Silurian stratigraphy; general studies of rocks and structure; Martinsburg shale in the Delaware Valley region; mapping of New Cumberland and York-Hanover quadrangles; completion of areal mapping of the Brookville, Curwensville and Meyersdale quadrangles; published report on glacial deposits.

South Dakota.—Stratigraphy of the Pierre formation; report on the geology of Day County.

Tennessee.—Preliminary report on stratigraphy of the Knox dolomite.

Texas.—Report on the geology of Palo Pinto County.

Vermont.—Geology of a part of the Green Mountains and of the Memphremagog quadrangle.

Virginia.—Geology of the Appalachian Valley, Brunswick County, Hot Springs district, Shenandoah National Park area, Stony Man quadrangle, State parks; Eocene formations; and natural wonders.

Washington. — Geologic map of State.

West Virginia. — Completed geologic map of State.

Wisconsin.—Studies of the Cambrian, Oneota dolomite, and Niagara dolomite.

Wyoming.—Geology of the northeast part of the Medicine Bow

Mountains and adjoining Laramie Basin; completed studies of, and issued reports on, the geology of the western end of the Owl Creek Mountains and of the north end of the Medicine Bow Mountains.

ECONOMIC GEOLOGY

Alabama.—Report on resources of northern Alabama; statistics of mineral production for 1929-1930; completed reports on the history and work of the geological surveys and industrial development in Alabama and on the resources of the Tennessee Valley.

Arizona.—Reports on the Bagdad district and the Jerome quadrangle.

Arkansas.—Study of lakes; compilation of elevations and of mineral production statistics; completed study of the geology of the Gulf Coastal Plain, text of a mineral directory of the State, and collections of economic minerals of the State for distribution to schools; published mineral production statistics and mineral directory of the State.

California.—Compilation of an index and supplemental notes on American mining law, and of statistics on mineral production for 1933; completed studies of geology and mineral resources of northeast Madera County and of Laurel and Convict basins, Mono County; published *Bulletin 109, Mineral Production for 1932,* and *California Journal of Mines and Geology,* Vol. 30.

Colorado.—Cooperative reports on mineralogy of the State; geology and mineralization of the Snowmass Mountain area, Gunnison County; underground developments and geology in the Aspen district.

Georgia. — Completed report on mineral resources.

Idaho.—Completed a study of the Casto quadrangle.

Illinois. — Areal survey of Grays Lake-Waukegan quadrangles; study, with the Federal Land Bank, of land subsidence; cooperative work with the Chemical Warfare Service, the State Planning Commission, and the Illinois Commerce Commission, electrical resistivity studies in Hardin County; annual economic survey and statistical review of the Illinois mineral industry (report published).

Indiana.—Project to relieve stream pollution from coal mine drainage in the Patoka River basin.

Kansas.—Study of road materials.

Michigan.—Completed appraisal of mines and mineral lands for the State Tax Commission.

Montana.—Geology of the Coopers Lake quadrangle; preparation of mining directory of State.

New Jersey. — Collected mineral statistics and local geologic data.

New Mexico.—Studies and report on the Fusulinidae of the Pennsylvanian and Permian systems.

New York.—Study of mining and quarrying industries for 1930-1933; published report on earthquakes and a guide to the geology of John Boyd Thacher Park.

Pennsylvania.—Geology and mineral resources of Lehigh and Northampton counties; report on undeveloped mineral resources of State; completed a story of geology and mineral resources of Fayette County.

South Dakota. — Published report on Grant County.

Texas.—Report on the geology of Texas, *Structural and Economic Geology,* Vol. 2; monograph on the Midway group of Texas.

Vermont. — Completed report on mineral industries.

Virginia.—Compilation of data for State Planning Board; preparation of sets of minerals, rocks, and economic products for use in schools; compilation of county mineral resource maps.

West Virginia.—Geologic report on Greenbrier County; story of West Virginia's mineral and natural resources.

FUEL MINERALS: OIL AND GAS

Arkansas.—Oil shales of the Ozark region; completed and published list of oil and gas wells; report published on oil and gas geology of the Gulf Coastal Plain.

Georgia.—Report on oil and gas possibilities completed.

Illinois.—Physical tests of oil sand cores; subsurface oxidation of petroleum in oil sands repressured with air; acid treatment of oil wells; removal of emulsion from oil (preliminary report issued); corrosion protection for oil well casing; data on repressuring plant methods; water flooding in Illinois oil fields; the western Lawrence County oil field; reports on oil and gas developments in Illinois in 1933; completed report on oil and gas possibilities of parts of Jersey, Green, and Macoupin counties.

Kansas.—Oil field brine disposal; completed a study of the development of oil and gas resources of Kansas in 1931 and 1932 (publication in progress).

Kentucky.—Completed and issued publications on oil and gas well log book of Kentucky; summarized certain data in western Kentucky coal basin as to oil and gas possibilities.

Michigan. — Examination and report on mining and oil enterprises for State Securities Commission.

Mississippi. — Investigation of oil and gas.

Missouri.—General oil and gas investigations in western part of State, local areas having been completed.

Montana.—Investigation of natural gas.

Ohio. — Study of Structures and correlation of deep oil and gas producing sands; collection of oil and gas well records.

Pennsylvania.—Structure in northwestern counties with relation to oil and gas; deep drillings; correlation of oil sands with outcropping rocks; completed a study of the Bradford oil field.

Washington.—Oil and gas studies.

West Virginia.—Oil and gas studies.

COAL

Alabama. — Study and report on the Warrior coal basin.

Illinois.—Agglutination tests of Illinois coals and studies of coal dust as a source of fusain for coking certain coals; smokeless coal briquets; use of Illinois peat in the manufacture of lightweight structure and refractory products; classification of Illinois coals; study of the constitution of sized coals and of commercial coal fines; coal carbonization information available from industry; gas, coke and by-product making properties of Illinois coals; a general coal report; publication of progress report on physical properties of coal under variable temperature, pressure, and time; composition and fusibility of ash from Illinois coals; and proximate and ultimate analysis of coal. Other contributions to the study of coal are in progress.

Kentucky.—Study and preparation of report on coal bumps in Harlan County.

Michigan.—Survey of coal developments and a report on coals.

Pennsylvania.—Pottsville coals and general studies on coal.

South Dakota. — Studies and reports on the Bison and Stoneville coal areas.

METALLIC MINERALS

Alabama. — Study and report on brown ores; completed studies and reports on red iron ores of northeastern Alabama, tin deposits, bauxite deposits, the Hog Mountain and other gold mines, and manganese deposits.

Arkansas.—Geomagnetic study of the cinnabar region of southwest Arkansas.

Arizona.—Gold placers and placering; lode gold mines and mining (report issued); and molybdenum.

California.—Geology and ore deposits of the Julian district, San Diego County; notes on sampling as applied to gold quartz deposits; notes on elementary placer mining in California, special machines and processes and the milling of gold ores; gold resources of Siskiyou County and of the Mother Lode gold belt; published report on placer mining and milling gold ores.

Colorado. — Geology and ore deposits of the Front Range (report in progress), of the Red Mountain-Sneffels-Telluride district, of the Boulder County tungsten district, of the Jamestown district, and of the Ouray district. Reports were in progress on the last three projects.

Georgia. — Completed reports on manganese and gold.

Idaho. — Cooperative studies of gold-bearing gravels; of the Yellow

Pine-Edwardsburg, Boise Basin, Thunder Mountain, Buffalo Hump-Elk City, Pearl-Horseshoe Bend, Banner, and Orogrande districts; and of the Casto quadrangle. Publications were in progress or completed on several of these projects; also on the Tenville district.

Minnesota. — Detailed mapping of the Vermilion iron range.

Mississippi.—Study of bauxite.

Montana. — Geology and ore deposits of the Rochester, Silver Star, Neihart, and Badger Pass mining districts (report on latter completed).

New Mexico. — Study and report on ore deposits of San Miguel County; cooperative studies of the geology and ore deposits of the Central district, Grant County, and of the geology and ore deposits of the Lordsburg district, Hidalgo County.

North Carolina.—Survey of nickel deposits.

South Carolina.—Study of gold deposits.

Tennessee. — Published report on iron ores.

Virginia.—Blue Ridge Cambrian hematite; geology and mineral resources of Goochland County; the Great Gossan Lead; iron deposits of western Virginia; cooperative report on lead and zinc completed.

NONMETALLIC MINERALS

Alabama. — Limestones and dolomites; barite; and fullers earth in Barbour County.

Arkansas. — Report published on porosity of the sandstones of northern Arkansas.

California.—Studies of clays and limestones.

Florida.—Sedimentary kaolins.

Georgia. — Studies of mica and feldspar deposits, with reports completed; reports completed on precious stones, barite, ocher, and shale.

Illinois.—Sand and clay for synthetic molding sand; northern Illinois dolomite; physical properties of clays; rock wool resources (report issued); utilization of fluorspar; Illinois gannister as a refractory; southern Illinois tripoli for pottery manufacture; southern Illinois silica; building stone; study of well cuttings; mineral resources of the Illinois Valley; completed CWA project on Illinois mineral resources with special reference to new and improved uses.

Iowa. — Clay and clay products; road and concrete materials of southern Iowa; completed reports on mineral statistics for 1930, 1931, and 1932.

Kentucky.—Fluorspar industry.

Michigan. — Published report on foundry sands.

Minnesota.—Granitic areas in Lake and Cook counties; anorthosite areas on north shore of Lake Superior; report on building stones (in press).

Mississippi.—Investigations of pigments, tripoli, and clays.

Missouri.—Completed preliminary study of bleaching clays and a study of the petrography of fire clays of the Ozark region; issued biennial report for 1933-1934.

New Mexico. — Study and report on nonmetallic mineral resources and on pegmatites of Taos and Rio Arriba counties.

New York.—Report on limestone resources.

North Carolina. — Kyanite and kaolin deposits.

Ohio. — Sampling and analyzing limestones of western Ohio and brines from deep-seated rocks.

Pennsylvania. — Studies of stone resources, clay resources, and nonmetallic minerals.

South Carolina. — Granites, white clays, and fuller's earth.

Tennessee. — Clay and shale resources.

Virginia.—Barite, commercial granites, slate, talc and soapstone; geology and mineral resources of the Abingdon quadrangle, of the Natural Bridge district, and of Giles County.

West Virginia.—Study of brines.

Wyoming.—Studies and reports on saline lake deposits and on all other lakes; reports on lakes issued.

GROUND-WATER RESOURCES

Arkansas.—Completed preliminary study of water supply for Little Rock; compiled a list of all water wells in State.

Florida.—Study of resources.

Illinois. — Cooperative work with State Water Survey Division.

Indiana.—Report on ground waters completed.

Iowa.—Studies of deep wells.

Kansas.—Investigations of municipal ground-water supplies.

Maryland. — Study of drainage basins in cooperation with the U. S. Geological Survey and the State Water Commission; census of about 6,000 wells.

Michigan. — Cooperative ground-water surveys for forest fire control; test drilling of shallow-water areas; completed study of water supplies for municipal, public, and industrial uses.

Minnesota. — Water supplies of central and southern parts; reports on the Minneapolis-St. Paul district and the metropolitan drainage area.

Missouri.—Study of resources.

Montana. — Reports prepared or published on artesian water near the Big Snowy Mountains, in the Judith River formation of northeastern Montana, in the Lance and Fort Union formations of southeastern Montana, and the Big Hole Basin.

Nebraska. — Study and report on ground-water resources of the Platte Valley.

New Jersey. — Collection of well records.

Pennsylvania.—Cooperative reconnaissance of ground-water resources of central Pennsylvania and Statewide well gaging.

South Dakota. — Studies and reports on water supplies.

Virginia. — Cooperative study of ground-water resources of Shenandoah Valley and report completed on ground water resources of northern Virginia.

West Virginia.—Ground-water resources; mineral waters.

GEOLOGIC AND TOPOGRAPHIC MAPS

Most state surveys are making geologic, mineral resource, and topographic maps, in part cooperatively with the U. S. Geological Survey and other organizations.

Alabama. — Maps of barite deposits, Warrior coal fields, and brown ore deposits; completed map of northeastern Alabama.

Arkansas.—Preparation of county maps.

Arizona.—Issued a new State topographic and highway map and a small mineral map.

Idaho.—Topographic maps of two areas.

Illinois. — Topographic sketching on 17 quadrangles; engraved maps issued by the U. S. Geological Survey for 7 quadrangles.

Indiana.—Stream pollution map of Patoka River basin; topographic map of Sullivan County coal area.

Kansas.—Geologic map of State.

Michigan. — Aerial photography, ground control, and base mapping; geologic map of State begun.

Missouri. — Topographic mapping of quadrangles and mapping of strips for location of State highways.

Montana. — Cooperative geologic map of the State; topographic map of one district.

Nebraska.—Completed a land-use map of the State; 3 quadrangles mapped topographically; soil survey maps in county reports.

New Jersey.—Revision of several topographic maps.

North Carolina. — PWA topographic and aerial mapping.

Pennsylvania. — Topographic mapping on 5 quadrangles.

Vermont. — Topographic mapping of 2 quadrangles.

Virginia. — Topographic mapping of 8 quadrangles 3 PWA topographic projects; engraved maps issued by U. S. Geological Survey for 4 quadrangles and for Shenandoah National Park.

Washington.—State geologic map.

West Virginia. — Completed State geologic map.

RECLAMATION AND IRRIGATION

By L. H. Mitchell

Bureau of Reclamation, Department of the Interior

PENDING PROJECTS

The following table, which gives by states the projects of the United States Reclamation Service financed with Public Works Administration Allotments, also shows the amount alloted to each project and the construction features:

State	Project	Allotment	Construction Features
Oregon	Deschutes	$ 50,000	Investigations of water supply.
Arizona-Nevada	Boulder Canyon	38,000,000	Construction of Boulder Dam power plant and appurtenant works. Purchase of machinery and equipment for Boulder power plant. Total cost $108,800,000.
Oregon-Idaho	Owyhee	6,500,000	Canals and structures, North Canal system. Malheur River and other large siphons. Total project cost $18,000,000.
Oregon	Vale	1,000,000	Agency Valley Dam and reservoir (Earth embankment, 480,000 cu. yds.). Willow Creek Canal, 20 miles.
Washington	Yakima-Kittitas	60,000	Canals and laterals in Kittitas division. (Completed).
Washington	Grand Coulee	15,000,000	Grand Coulee Dam and power plant, 3,350,000 cu. yds. of concrete. Railroad, highways, bridge, townsite buildings, streets, water supply, etc. Total cost, $63,000,000.
Colorado	Denver Office	20,000	Office alterations. (Completed).
Wyoming	Casper-Alcova	12,000,000	Alcova diversion Dam. Seminoe Dam, reservoir and power plant. Canals and structures. Transmission line and two substations. Total cost $22,700,000.
Arizona	Yuma	120,000	Drains and drainage structures, Valley division.
Idaho	Boise	31,000	Drains and drainage structures, Boise Kuna district.
Idaho	Boise	9,000	Drains and drainage structures, Notus district.
Idaho	Upper Snake River Storage	4,000,000	Storage dam and reservoir on Upper Snake River.
Idaho	Minidoka-Gooding	30,000	Laterals and structures in Gooding division. (Completed.)
Montana	Bitter Root	100,000	Reconstruction and improvement of laterals and structures in irrigation district.
Montana	Milk River	65,000	Laterals and structures.
Montana	Chain Lakes Storage	2,000,000	Fresno storage dam and reservoir on Milk River near Havre.
Montana	Sun River	600,000	Drains and drainage structures. Laterals and structures.
Nevada	Newlands (Truckee Storage)	1,500,000	Storage dam and reservoir on Little Truckee River, California.
Nevada	Humboldt	2,000,000	Rye Patch Dam and reservoir on Humboldt River.
New Mexico-Texas	Rio Grande	500,000	Laterals, drains and structures in Elephant Butte district, New Mexico.
Oregon	Stanfield	100,000	Reconstruction of canals and structures, Stanfield district.
Utah	Hyrum	930,000	Hyrum Dam and reservoir on Little Bear River. (Earth dam and dike, 350,000 cu. yds.) Hyrum-Mendon Canal, 14 miles, and smaller canals and canal structures.

State	Project	Allotment	Construction Features
Utah	Ogden River	3,000,000	Pine View Dam and reservoir on Ogden River near Huntsville. South Ogden and North Ogden highline canals and other canals and canal structures.
Arizona-California	All-American Canal	9,000,000	Imperial diversion dam (floating or Indian weir type, 1,700 ft. long), 80 miles of main canal, and 130 miles of Coachella branch canal. 65,000,000 cu. yds. of excavation. Total cost, $27,000,000.
Arizona-California	Colorado River Indian	25,000	Investigation and survey of irrigation project in Colorado River Indian Reservation.
Arizona	Gila Valley	75,000	Investigation and survey of irrigation project in Gila River Valley. Diversion at Imperial dam. Power for pumping from Parker power plant.
Utah	Provo River	2,700,000	Deer Creek Dam and reservoir. Canals and structures. Enlargement of Weber-Provo canal. Utah Lake levees. Total cost, $9,974,000.
Utah	Moon Lake	1,500,000	Moon Lake Dam and reservoir.
Utah	Sanpete	300,000	Tunnels and short feeder canals for Ephraim and Spring City divisions.
Colorado	Uncompahgre	2,725,000	Taylor Park Dam and reservoir ($2,000,000). Improvement of Gunnison Tunnel ($400,000). Repairs to project canal system ($325,000).
Arizona-Nevada	Boulder Canyon	25,000	Industrial survey in Boulder Dam area (*Geological Survey* is co-operating in making field investigations).
Oregon	Umatilla River	10,000	Survey of Umatilla River watershed to determine feasibility of storage reservoirs.
Colorado	San Luis Valley	900,000	Construction of drain in "closed basin."
Oregon	Grande Ronde	10,000	Investigation of Meadow Park Dam site on Grande Ronde River.

AGRICULTURAL RESULTS

The table below gives data on the irrigated cropped area (in acres) for the past two years:

	Cropped area	CROP VALUE	
Year	(acres)	Total	Per acre
1933	1,529,903	$48,138,576	$31.45
1932	1,506,320	$31,165,752	$20.69

Each year there is a small area cropped without irrigation. In 1932 this area was 72,560 acres, of which 55,326 acres were in the Tule Lake Division of the Klamath project in Oregon. In 1933, the total area cropped without irrigation was 68,799, of which 56,684 acres were in the Tule Lake Division. The per acre value of the crops without irrigation was $5.03 in 1932 and $9.10 in 1933.

The Bureau also sells a supplemental supply of water to private projects (Warren Act and others). A table giving data on the water service contracts like that above for the regular Bureau projects follows:

	Cropped area	CROP VALUE	
Year	(acres)	Total	Per acre
1933	1,199,113	$35,125,870	$29.50
1932	1,196,400	$18,627,219	$15.57

The substantial increase in the value of crops for 1933 over that for 1932 for both the Federal and private projects is attributed to a slight increase in the production of crops and a marked advance in the unit value of nearly all farm products.

CROP DISTRIBUTION, 1933, IN FEDERAL IRRIGATION PROJECTS

Crop	Acreage Cropped		Value		
	Acres	Per Cent	Per Acre	Total	Per Cent
Cereals	356,922	22.4	$12.62	$ 4,503,898	9.2
Other grain and seed	34,819	2.2	16.15	562,554	1.2
Hay and forage	1,211,148	75.7	11.26	13,637,431	27.9
Vegetables and truck	142,916	8.9	72.30	10,326,843	21.2
Fruits and nuts	57,095	3.6	94.80	5,406,141	11.1
Sugar beets	110,008	6.9	59.80	6,575,616	13.5
Cotton (lint and seed)	147,507	9.2	50.00	7,397,420	15.2
Miscellaneous	15,411	1.0	23.10	355,960	0.7
Duplicated acreage	477,124	29.9	.....	....	....
Total	1,598,702[1]	100.0	30.50	$48,765,863[2]	100.0
Warren Act projects	1,199,113	....	29.50	$35,425,870	....
Grand total	2,797,815	....	30.10	$84,191,733	....

[1] Includes 68,799 acres cropped without irrigation. [2] Valued at $627,287.

SETTLEMENT AND ECONOMIC DEVELOPMENT

Only one public notice opening public lands to entry was promulgated during the year. On the Kittitas division of the Yakima project 26 farm units, comprising 1,842.6 acres, were opened to entry. These were in great demand by home seekers. On the Riverton project and Willwood division of the Shoshone project, both in Wyoming, 44 and 19 homestead filings, respectively, were made. The increasing demand for self-supporting farms augmented by the drouth throughout the Central West is bringing reclamation by irrigation into its true and rightful place. In the present study, which has for its object the possibility of moving farmers now on submarginal land to more productive areas where they may become self-sustaining, several of the U. S. Bureaus of Reclamation projects are being considered. It is possible that if a Rural Rehabilitation program is adopted by the Government, some of the Bureau of Reclamation projects will become the homes of many deserving and qualified settlers who are now on relief.

LIVESTOCK AND EQUIPMENT, 1933, FEDERAL IRRIGATION PROJECTS

Item	Number	Value	
		Each	Total
Horses	67,472	$41.30	$2,797,569
Mules	9,888	53.70	530,199
Beef cattle	101,188	20.90	2,116,523
Purebred sires	725	69.60	50,455
Scrub sires	297	27.30	8,112
Dairy cattle	166,775	28.30	4,712,826
Purebred sires	1,566	60.05	94,400
Scrub sires	1,479	26.70	39,487
Sheep	494,787	3.58	1,773,021
Hogs	111,056	3.90	433,276
Brood sows	14,097	7.20	101,393
Fowls	2,042,839	.56	1,145,480
Bees (hives)	27,663	3.92	108,113
Total stock value	....	....	$13,910,854

Value of equipment:	
Motor vehicles	$20,109,633
Other equipment	8,841,293
Total value of equipment	$28,950,926

Total stock and equipment value	$42,861,780
Increase in value over 1932:	
Stock	$418,407
Equipment	60,503
Total	$478,910

SUMMARY OF BUREAU OF RECLAMATION WORK

(June 30, 1934)

Number of projects		38
Reservoirs		68
Reservoir capacity (including Boulder)	Acre feet	44,588,510
Combined length, all dams	Miles	31
Combined maximum height; all dams	Lin. feet	9,208
Canals and drains	Miles	17,896
Tunnels (227)	Miles	51
Material in dams; concrete, earth and rock	Cu. Yds.	26,725,126
Number of canal structures		170,679
Bridges (12,522)	Miles	57
Culverts (16,739)	Miles	130
Pipe	Miles	1,423
Flumes (5,680)	Miles	171
Canals lined	Miles	530
Roads	Miles	1,502
Railroads	Miles	120
Telephone lines	Miles	4,170
Power plants (41)	Capacity in H. P.	212,534
Transmission lines	Miles	3,778
Excavation, earth and rock	Cu. Yds.	326,962,284
Number irrigated farms		43,569
Population of farms		181,929
Population of farms and towns		680,087
Number of schools		736
Number of churches		798

PUBLIC LANDS

By Fred W. Johnson

Commissioner of the General Land Office

ENTRIES

Acreage.—The original public-land entries for the fiscal year ended June 30, 1934, embraced 3,584,883 acres, nearly a 15% increase over the preceding year. About 80% of this vast acreage and more than 65% of the area patented or certified was due to the homestead laws. At the close of the fiscal year there were embraced in pending unperfected entries, filings and selections 24,040,779 acres, of which 19,883,591 acres were contained in 54,020 homestead entries. The area of the remaining vacant, unappropriated and unreserved public lands, exclusive of Alaska, was 165,695,479 acres on June 30, 1934, located by states as shown in a table at the end of this article (p. 238).

Homestead Entries.—There were approved for patenting 3,992 homestead entries. Final stock-raising homestead entries to the number of 1,507, involving 726,859 acres, were patented. Since the passage of the stock-raising Homestead Act of Dec. 29, 1916, 65,955 such entries, aggregating 25,053,208 acres, have been patented, in all of which the minerals are reserved to the United States.

Mineral Entries and Locations.—During the year 110 entries were patented under the mining laws and 325 mineral entries were received for action. During the same period 203 mineral applications and 622 miscellaneous mineral cases were received. Receipts from bonuses, royalties and rentals under the law providing for the leasing of mineral rights on the public domain aggregated $3,206,624.63. The largest receipts were obtained from mineral lands in California, the amount being $1,672,953.58, and $1,134,711.74 in Wyoming. Smaller amounts were received from lands in New Mexico, Utah, Montana, Colorado, North Dakota, Louisiana, Alabama, Washington, Idaho, South Dakota, and Nevada, in the order named. Under the terms of the mineral leasing act of 1920 each State receives 37½% of the receipts from bonuses, rentals and royalties derived from the public lands within its borders, the reclamation fund receives 52½%, and the other 10% is paid into the Treasury of the United States and credited to miscellaneous receipts.

Legislation. — During the fiscal year the office submitted reports on a total of 110 public and private bills affecting the public lands, and 49 congressional bills became laws through the approval of the President and during the last five years there were 328 such acts. Instructions necessary to carry the laws into effect were issued in 37 cases.

PREFERENCE RIGHTS FOR EX-SERVICE MEN

There were opened to entry through release from segregation or withdrawal or through survey or resurvey public lands aggregating 454,901 acres, with preference right of entry to ex-service men of any war, military occupation, or military expedition, including those citizens who served with the allied armies during the World War.

RECREATIONAL AREAS

Six withdrawals aggregating 2,409 acres were made for recreational purposes on state petitions. Approximately 538 acres were leased to Mohave County, Arizona, and one tract of 40 acres was purchased by Pima County, Arizona. The total areas under this act now amount to 5,748 acres sold, 14,065 acres embraced in 14 outstanding leases, and 94,105 acres in existing withdrawals. An additional area of 190,140 acres in California is reserved for five years authorizing selection of lands for state park purposes.

GRAZING LANDS

For stock driveways to expedite the movement of stock between grazing areas and shipping points, nine new driveways were established resulting in the withdrawal of 124,009 acres. The total area included in such withdrawals at the close of the fiscal year was 9,771,386 acres. The "Taylor Bill," H. R. 6462 became a law June 28, 1934 (Public No. 482, 73rd Congress). The act authorizes the Secretary of the Interior to provide for the protection, orderly use, and regulation of the public ranges and the creation of grazing districts with an aggregate area of not more than 80,000,000 acres. Local residents, settlers, and owners of land and water, who have been using the public range in the past, are given a preference when placed under Federal regulation. Water development, soil erosion work and the general improvement of such lands are also provided for in the act.

RECEIPTS AND EXPENDITURES

Receipts.—The total cash receipts from sales, leases, and other disposition of public lands (including receipts from copies of records, sales of Government property, etc.), were $3,974,027.03, and from sales of Indian lands $61,414.05, an aggregate of $4,035,441.08, the source of which and disposition in the Treasury are shown in the table (page 236) in so far as is possible before final settlements of all accounts by the General Accounting Office.

RECEIPTS AND EXPENDITURES

Source of Receipts	Distribution in the Treasury			
	General Fund	Reclamation Fund	State Fund	Total
Sale of public lands	$34,179.15	$60,911.57	$4,047.62	$99,138.34
Fees and commissions	70,986.10	189,235.00		260,221.10
Bonuses, rentals, and royalties from mineral leases	342,323.98	1,682,695.34	1,201,925.24	3,226,944.56
Proceeds of land and timber in Oregon and California railroad grant			269,026.28	[2]269,026.28
Proceeds of land and timber in Coos Bay wagon road grant	4,038.67		[3]1,060.97	5,099.64
Fees from copies of records	18,819.29			18,819.29
Royalties on coal leases in Alaska	5,277.67			5,277.67
Royalties and rentals from potash deposits		57,159.64		[4]57,159.64
Power permits	15,275.00			15,275.00
Sale of reclamation town sites		2,731.75		2,731.75
Sale of standing timber in Alaska	5,486.82			5,486.82
Miscellaneous (surveying fees, rent of lands, proceeds of Government property, etc.)	8,846.94			8,846.94
Total	$505,233.62	$1,992,733.30	$1,476,060.11	$3,974,027.03
Sales and leases of Indian lands				[5]61,414.05
Aggregate				$4,035,441.08

[1] First and fourth columns contain $20,319.93 royalties received in Wyoming under the Act of June 26, 1926.

[2] This amount is payable to certain counties in Oregon in lieu of taxes.

[3] Amount payable to Coos County, Oregon, 25 per cent of proceeds of land and timber.

[4] Potash royalties on permits and leases issued under the Act of February 7, 1927 (44 Stat. 1057) are deposited as "Receipts under the mineral leasing act" and distributed accordingly.

[5] Of the amount received as royalties from oil lands in the bed of Red River, Oklahoma, 37½ per cent, $12,007.23, is paid to Oklahoma, and the balance, $20,012.03, is credited to the Kiowa, Comanche, and Apache Indians.

Expenditures.—The total expenditures for the conduct of the business of the General Land Office, including the expenses of the district land offices ($205,809.73) and expenses of activities transferred to the division of investigations ($305,290.13) amounted to $1,252,506.23. This does not include expenses of the surveying service that were paid from emergency funds, contributed funds, or from appropriations made for the survey of Indian lands.

CADASTRAL ENGINEERING SERVICE

Cadastral surveying projects were carried on in 23 states and the Territory of Alaska under 244 separate groups, 87 of which in 15 states were of resurveys. Such of those surveys and resurveys as are measurable on a quantity basis aggregated 35,970 linear miles, embracing 6,290,089 acres. This volume of work far exceeds that accomplished in recent years and may be attributed both to an increase in funds available for surveys and to the general type of surveys undertaken. During the nine months of surveying operations under Public Works and the four and one-half months of Civil Works operations, 770,945 and 254,680 man-hours, respectively, were provided on outstanding projects of lasting social value. During the year approximately 2,300,000 acres of agricultural lands were surveyed in the United States proper and Alaska, largely in the States of Arizona, Idaho, New Mexico and Utah. Cooperative surveys were executed for the Forest Service to the extent of approximately 1,200,000 acres. Work was also done for the National Park Service, the Geological Survey, the Federal Power Commission, the Bureau of Indian Affairs and the Division of Investigations of the Department of the Interior. There were accepted and placed on file plats representing 1,467,736 acres of original surveys of public lands, and 664,742 acres of lands resurveyed, a total of 2,132,478 acres.

MAPS

The copper plates of the map of the United States have been revised to show current changes and additions to the public land surveys since the publication of the 1931 edition, and a new 1934 issue embodying such changes is in the hands of the contractor for printing. A new map of Arizona has been issued, and a new map of Colorado has been completed and is ready for printing. In addition, maps and diagrams to the number of 924 were prepared, revised or corrected.

OIL AND GAS

Under section 14 of the Mineral Leasing Act of Feb. 25, 1920, there were issued during the year 36 leases as a reward for discovery of oil and gas as result of prospecting under a permit. One lease was granted under section 17 of said act to the successful bidder at a sale, the bid being $11,000. There are now outstanding 834 oil and gas leases embracing nearly 300,000 acres. Pursuant to the act of March 4, 1931 (46 Stat. 1523), a unit plan of development and operation of the Middle Dome, Kettleman Hills Oil and Gas Field, in Kings County, Calif., was approved by the Department Sept. 30, 1933; subsequently, ten leases covering 4,537.48 acres were delivered to lessees in this field. It is estimated that the field contains 40,000,000 barrels of oil within the area now regarded as proven productive. Under instructions from the Department, oil and gas leases have been so amended as to require that the lessees agree to abide by the Code of Fair Competition for the Petroleum Industry, as approved by the President, Aug. 19, 1933.

MISCELLANEOUS PERMITS AND LEASES

During the fiscal year ended June 30, 1934, 907 oil and gas permits were granted, 12 of which were in Alaska. Thirty-one coal leases, 58 coal permits, 26 coal licenses, 14 potash permits, 19 sodium permits, 22 sulphur permits, 19 aviation leases, 8 fur farming leases in Alaska, and 1 grazing lease in Alaska were issued.

RIGHTS OF WAY

Fifty-one railroad right of way applications and 1,132 irrigation and miscellaneous applications were received, all, but 25 of these received some action.

RECLAMATION AND IRRIGATION

Action was taken on 465 original homestead entries involving lands in Federal irrigation projects; 253 assignments were considered; 76 desert-land entries and 292 final reclamation homestead entries were approved for patenting. Two hundred and seventy-seven cases under the desert-land laws were approved and 110 were canceled. There was also considerable activity under the Carey Act providing for reclamation of arid lands under State supervision, the Pittman act to encourage the development of underground waters in Nevada, and the swamp land grant to several States entitled thereto.

WITHDRAWN PUBLIC LAND

It is estimated that the 51,585,267 acres of withdrawals contain 30,442,832 acres net of Government land in the public domain States.

The table (p. 237) shows the area by States of the vacant, unappropriated and unreserved public land on June 30, 1934.

VIII. PUBLIC RESOURCES AND UTILITIES

PUBLIC LAND WITHDRAWALS

(June 30, 1934)

	Withdrawn in 1934	Restored in 1934	Pending Withdrawn June 30, 1934
Stock driveways	124,009	15,529	9,771,386
Recreational area withdrawals	2,409	....	284,285
Air navigation sites	1,675	2,885	32.880
Carey Act withdrawals	....	....	668,675
Carey Act segregations	....	....	219,596
Reclamation withdrawals	850,880	850,815	20,208,621
San Carlos irrigation project (Indian)	....	....	136,860
Ft. Hall irrigation project (Indian)	....	1,280	114,720
Ft. Peck project, Montana	204,720	....	204,720
Booneville dam, Ore.-Wash.	79,080	....	79,080
Water power reserves (non-Indian)	257,954	20,983	5,147,654
Reservoir and well sites	....	....	254,130
Public water reserves	11,027	1,720	480,708
Los Angeles water supply	[1]265,000	....	866,365
Mizpah-Pumpkin Creek grazing district	....	....	25,124
Grazing withdrawals	3,058,520	....	3,425,840
O. & C. and Coos Bay unrestored timber land	....	10,615	1,250,856
Created into national forests in 1934	192,095	....	....
For Boulder Canyon transmission line	....	179,040	1,861,170
For forest exchange with New Mexico	441,000	....	681,000
For game and bird refuges	56,270	....	162,691
For national forest purposes	6,486	80	134,653
For national parks and monuments	1,162,286	81,945	3,943,497
For N. M.-Ariz. Indian consolidation	....	....	1,134,972
For military firing range	80,000	....	(excluded)
For agricultural experiment stations	....	....	310,179
For flood and erosion control	6,360	....	15,720
For State game refuge investigation	....	....	73,080
For recreational investigation	....	....	43,793
For irrigation-power investigation	....	....	30,880
For archaelogical investigation	....	....	11,090
For miscellaneous purposes	5,564	....	11,042
Total	6,805,335	1,164,892	51,585,267

[1] Includes Owens River-Mono Basin grazing district.

AREA OF VACANT PUBLIC LANDS

States	Area in Acres		
	Surveyed	Unsurveyed	Total
Arizona	6,452,400	6,626,160	13,078,560
California	10,779,558	5,015,511	15,795,069
Colorado	6,715,448	836,749	7,552,197
Idaho	8,712,972	1,356,120	10,069,092
Montana	5,805,351	73,580	5,878,931
Nevada	30,282,321	20.693,428	50,975,749
New Mexico	10,856,000	927,265	11,783,265
North Dakota	141,790	....	141,790
Oregon	12,825,154	94,191	12,919,345
South Dakota	463,420	....	463,420
Utah	12,419,771	10,112,339	22,532,110
Washington	690,746	2,005	692,751
Wyoming	13,196,851	616,349	13,813,200
Total	119,341,782	46,353,697	165,695,479
Territory of Alaska	....	346,174,242	346,174,242
Grand total[1]	119,341,782	392,527,939	511,869,721

[1] This total does not include areas remaining undisposed of in the States of Alabama, Arkansas, Florida, Kansas, Louisiana, Michigan, Minnesota, Mississippi, Nebraska, Oklahoma, and Wisconsin, or the area of the vacant and unreserved surveyed public lands in Alaska, which figures are not available.

PUBLIC SERVICE COMMISSIONS

By John Bauer

The American Public Utilities Bureau

POWERS AND DUTIES

Extension of Jurisdiction. — The pressure for revision of the regulatory system, which has continued intensively since the financial crash in 1929, has resulted in attempted or realized legislation with respect to powers and duties of public service commissions. In many instances the powers of the public service commissions have been broadened. These include extensions of regulatory jurisdiction over companies that do not directly own and operate public utilities but which are affiliated with them. The fact has become widely recognized that holding companies, with their various corporate ramifications, have been levying charges on the operating companies and so adding to their capital costs as well as operating expenses. These charges thus became a direct burden upon consumers.

Difficulties with Holding Companies.—So long as the jurisdiction of the commissions was limited to operating companies, investigation of charges made by holding companies and affiliated service units was strictly circumscribed. The books of the operating companies would show, for example, cost of additions and improvements to plant which contained amounts paid to affiliates for planning, engineering, supervision and similar items; likewise they showed charges to operating expenses for managerial, accounting, financial and other special "services" furnished. But the books of the affiliates were not open to the commissions and, therefore, the bases for the charges remained obscure and their reasonableness could not be determined.

INTERCORPORATE RELATIONSHIPS

Construction Costs.—In some instances the commissions forced light into these intercorporate relationships, and the facts disclosed were not flattering to the systems concerned. Largely the charges were shown to be arbitrary, with little regard to actual cost reasonably incurred for the benefit of the operating units. New properties were installed by affiliated construction companies under cost plus contracts; a flat percentage was added on top of all capital costs upon extensions and improvements. This course led inevitably to piling up of costs, and to undertaking of construction that had no sound economic basis.

Operating Expenses.—Similar conditions were found with regard to charges included in operating expenses. Holding companies or affiliates charged operating utilities certain percentages on all expenses for labor and materials incurred in operation, or upon all operating revenues. There were charges for management, auditing, advertising, and similar items. All were included in the operating expenses. But when in any instance the commissions attempted to find the bases of the charges they were met with resistance. They could not determine even the extent of services rendered, much less their proper cost and reasonable need. They were virtually blocked in their inquiry of proper cost.

Legislation. — The uncovering of the abuses started actively about the time when the country came within the grip of the economic crisis. It showed the necessity of extending control over all organizations levying charges upon the operating companies. Several states have enacted legislation that specifically reaches the intercorporate transactions. Some have given the commissions power to pass upon the reasonableness of all contractual relations between a utility and its affiliates. Only contracts which are found to be in the public interest may become effective. The utility is charged with filing all such contracts prior to their going into effect, so that the commission may pass upon their validity.

RATE ADJUSTMENT

Simplification of Procedure.—Another phase of regulation that has attracted the attention of legislatures and commissions is the necessity of simplifying rate-case procedure and providing short-cuts for rate adjustments. Regular rate cases have come to consume an enormous amount of time and expense. Some stretched from five to ten years before final adjudication. Then, of course, the entire record was so much waste paper, because the conditions had changed enormously in the meantime both with respect to valuation and to operating expenses, so that the entire procedure had to be gone all over again. With the realization that utility rate adjustments were especially necessary at a time when costs and purchasing power had been drastically reduced, legislatures have sought means to make it possible for commissions to effect rate changes promptly without formal procedure.

Interim Rates.—Thus, the New York State Legislature has just empowered the Commission to order temporary rate reductions while a case is pending. These interim rates must, however, show a return of not less than 5% upon the original cost of the properties, less accrued depreciation. They continue in force while the case is being heard, and they are expected to serve as a spur upon the company to hasten presentation of evidence instead of drawing out the proceedings to delay reductions. Similar provisions have been enacted in Illinois and have been the subject of serious consideration in New Jersey.

Original Cost and Depreciation.—It is doubtful, however, to what extent such provisions will serve the intended purposes. In the first place, already the question has arisen as to the exact meaning of "original cost less accrued depreciation," and how the amounts are to be determined. In the great majority of cases, neither element is known. The books usually go back for many years, antedating regulatory legislation, when entries of capital expenditures were unreliable, and even since regulation was established the accounting has not been subject to high standards of control. The original cost can seldom be satisfactorily ascertained. Nor is there any way of determining promptly the properly accrued depreciation. Even if the company has been following for many years the usual depreciation provisions, it may claim, just as has been generally the claim in rate cases, that the reserve accumulated does not reflect accrued depreciation. If the language of the statute is at all rigidly construed, the commissions will find themselves without effective powers and with little advantage as to promptness of rate reductions.

In the second place, even if the commission were to take the book figures of fixed capital as representing original cost and the amount in the reserve as accrued depreciation, assuming that the company could not claim a higher cost than shown on its books, or less depreciation than the accumulation in the reserve, then again the utility will, in all probability, challenge a rate reduction order based on such figures and ask the Federal court for an injunction. It is extremely doubtful whether interim rates claimed to be confiscatory will be permitted to be put into effect unless the company is assured that, if the litigation ends in its favor, the loss will be made good. If, however, this is demanded by court, there is no way of assuring the company against such loss, because the state has not underwritten shortages in revenue resulting from enforcement of utility rates even if fixed on a temporary basis.

If the regular basis for the establishment of permanent rates is to remain unaltered and the old method of ascertaining "fair value" is still to prevail, it is highly doubtful whether a provision for the institution of interim or temporary rates will be of any value as a short-cut in rate proceedings.

Valuation Methods. — A genuine attempt to cut through the unwieldy methods of valuation for rate making has been made by the Maryland Commission. Several years ago telephone rates ordered by it on the basis of valuation made by means of index numbers were upheld in court. At that time the method was used by the company itself, and so it was not in issue. This time, however, when the Commission used index numbers for adjustment of rate base the company challenged the method. The Commission unfortunately lost before the Federal court, but it may appeal to the Supreme Court. If the Commission were finally sustained, the index method would provide a genuine short-cut for rate adjustment. If, however, the reproduction cost basis is to be continued, then the entire regulatory process will have to be fundamentally altered by new legislative enactments if regulation is to be even tolerably effective.

FINANCING OF COMMISSIONS

With accumulation of large numbers of complaints, and with augmentation of powers and duties, the fact has become evident that commissions must be provided with more money to carry on their work. Notwithstanding the increasing urgency of rate adjustments, legislatures have been compelled to cut the usual allowances because of financial stringency. The cry of economy in governmental costs has not permitted larger appropriations for commissions. Hence a movement has been launched to levy expenses incurred in rate litigation upon the utilities themselves. This method of rate-case financing has been established in several other legislatures. The last session of the New York Legislature followed the lead of other states. A fund of $300,000 has been appropriated for the Commission to be used in employing additional assistance to cope with the large number of cases on its calendar. The expenses incurred in the work are later to be allocated by the Commission and levied upon companies whose rates are under investigation. The intention is to have this as a revolving fund so that the Commission may not be hampered in necessary investigations.

SUMMARY

To summarize, the tendency during the last year has been, first, to extend the scope of commission regulation so as to include holding and affiliated companies in addition to operating utilities. Second, efforts have been made toward more prompt rate adjustments in various ways. And, third, means are being provided for effectual exercise of powers possessed by commissions. Each of these efforts assumed different forms in various states and only further experience will show which, if any, will work toward more effectual utility regulation. In the meanwhile, there is also increasing pressure for the extension of public ownership and regulation.

MUNICIPAL OWNERSHIP OF UTILITIES

By H. M. Olmsted

Public Utility Consultant

ELECTION RESULTS

The month of November, 1934, produced a number of important occurrences affecting municipal ownership of public utilities. In the general election of Nov. 6, the citizens of Memphis, Tenn. (1930 population 253,143), by a 17 to 1 vote, authorized a $9,000,000 bond issue for the construction or acquisition of a municipal electric distribution system for the purpose of making available in that city electrical energy purchased from the Tennessee Valley Authority plants. On the same day, Sacramento, Calif. (1930 population 93,750) decided by popular vote to establish a municipal electric system, including a steam generating plant, total not to exceed $12,000,000. In the State of Washington, the Bone power bill, permitting cities and other governmental subdivisions of the state to operate utility properties outside of their corporate limits, was approved by a majority of nearly 2 to 1. As one result of this legislation Seattle, which already owns a $43,000,000 municipal electric system, will have authority to acquire the entire properties of the Puget Sound Power and Light Company which operates in a considerable territory in the vicinity of Seattle and competes with the municipal system to some extent. A purchase price of nearly $100,000,000 has been suggested.

Not all of the election results were favorable to municipal ownership, particularly in a number of small municipalities. Although Wapakoneta, O. approved the construction of a generating plant to serve the existing municipal distribution system, Muskogee, Okla., Mt. Olive, N. J., and Morenci, Mich. voted against municipal ownership. The State of Oregon defeated the Grange power bill which would have permitted the establishment of a state-owned power system.

TENNESSEE VALLEY AUTHORITY

On Nov. 18, President Roosevelt in addressing the citizens of Tupelo, Miss., which is served by a municipal plant that purchases its power from the TVA, created much interest and speculation throughout the country by his statement: ''what you are doing here is going to be copied in every state of the Union before we get through.'' From the various comments in the press, the following words of Will Rogers are particularly noteworthy:—''The President made one of his best speeches in Tupelo, Miss., Sunday. He told that the people could make their own electric energy cheaper than they were getting it. And, say, by Monday morning he had the companies talking 'new rates.' They all say the government can't do anything toward running any business, but they break their necks to see that it don't try.''

Tupelo was the first community actually to be served by the TVA. The price for the power furnished to the Tupelo municipal plant by the authority is stated to be about half of what had been formerly paid to a private power company, and the local rates in Tupelo as prescribed by the TVA are about half of what the citizens formerly paid. A large increase in consumption is reported to have occurred. By August the domestic use had increased 83 per cent, according to David E. Lilienthal, TVA director in charge of power development.

On the previous day, at Corinth, county seat of Alcorn County, Miss., the President complimented Alcorn as being the first county in the country to undertake cooperative control of power distribution, and referred to large rate reductions in the county. There a cooperative group, the Alcorn County Power and Light Association, was formed, which purchased the distribution facilities and operates as a non-profit-making enterprise.

By the latter part of 1934, eleven contracts for TVA power had been executed while applications for contracts were said to number 300.

The largest community that has made arrangements be served by the TVA is Knoxville, Tenn. (1930 population 105,802) where TVA headquarters are located. In November, 1933, Knoxville approved a bond issue for a municipal distribution system, but actual construction work has been deferred because of negotiations for the purchase by the TVA of properties of the utility company serving Knoxville and vicinity, the Knoxville portion to become the property of the city later. For a time it seemed that these would be carried through successfully, but litigation succeeeded in blocking the arrangements, whereupon Knoxville decided to go ahead with its own system.

PUBLIC WORKS ADMINISTRATION

The policy of the Public Works Administration in furnishing some of its funds for municipally-owned utilities, including a grant of 30% of the cost of labor and material, in addition to a loan, has undergone some clarification and restriction, both as to funds and scope. Public Works Administrator Ickes has reiterated that municipal power projects will be aided by the PWA only if, in addition to meeting the qualifications necessary for other public works projects, electricity is to be furnished at rates substantially lower than those otherwise attainable. This has tended to create some doubt and confusion, inasmuch as local private utilities can offer to reduce rates below those proposed for a municipal plant without such rates being permanently binding.

The power of the PWA to appropriate money for loans and grants to municipalities, to be used in unemployment relief and for the erection of utility projects, was tested in Federal court on two occasions late in 1934. In September, Judge Albert L. Reeves ruled that a loan of $30,000 and a grant of $17,000 to the city of Concordia, Mo., was illegal because it was not a matter of interstate commerce. Six weeks later Judge Merrill E. Otis refused to enjoin the city of California, Mo., against construction of an electric plant with PWA funds.

Late in the summer the PWA announced that $46,268,900 of its funds had been allotted to non-Federal electric projects, including 22 new municipal plants serving approximately 278,000 people. About three times as much money had been allotted for large Federal power projects.

One PWA allotment that has caused much interest is that of $2,767,000 to Greenwood County, S. C., for the construction of a hydro-electric plant on the Saluda River. The Duke Power Company opposed the project as constituting competition which would reduce the income of the power company and hence of the closely related Duke Foundation, with orphanages, hospitals, colleges and after beneficiaries thereof. The Federal Power Commission granted Greenwood County a license, but the power company filed suit in Federal Court in November for an injunction against the county.

MUNICIPAL ELECTRIC SYSTEMS

In the February, 1934, issue of *The Journal of Land and Public Utility Economics,* published by Northwestern University for the Institute of Economic Research, there is given a revised figure of 1,849 municipal electric light and power establishments as of Dec. 31, 1932; of these, 905 generated all or part of the energy. The article is by Professor Paul Jerome Raver, Director of Rates and Research for the Illinois Commerce Commission, who for several years has studied the municipal ownership situation in connection with the Institute. This figure is a decline of 13 establishments below 1931, but 1931 showed 53 less than 1930 and the latter year showed 99 less than 1929. Thus it was indicated that the decrease in the number of municipal establishments, evident since 1923, had practically stopped. In fact, the number of municipal generating plants showed an increase of 3 in 1932. The generating plants included some 31 which supplied electricity for street lighting and other municipal purposes only.

OPERATING RESULTS OF MUNICIPAL PLANTS

Evidence opposed to the view point, cited by Will Rogers, that public operation cannot work, is included in the voluminous report of the Power Authority of the State of New York, on Cost of Distribution of Electricity, which appeared in November, 1934. This report contains detailed studies of the cost of distribution in 20 privately owned and 9 publicly owned plants, besides having as background a mass of other information. The summary of conclusions, after giving over-all cost figures per kilowatt-hour, states: "Judging from the analysis of a number of public plants, the foregoing costs can be materially lowered where a municipality undertakes the public distribution of electricity, even though the same percentage on fixed capital is allowed to cover return on investment, depreciation, and property, franchise and income taxes now levied on private companies by municipal, state and Federal governments. Such reduction in costs will be found in the expense items. Actually through lower return on capital, and especially as they amortize the investment in their properties, public plants can still further reduce the cost of supplying service as compared with the costs shown above for private systems."

A study of "Forty Years of Public Ownership" in Massachusetts by Earl H. Barber, consulting engineer, in the November, 1934, issue of *The*

Journal of Land and Public Utility Economics, yielded the following similar conclusion: "The municipal plants of Massachusetts are supplying their public as well as the electric companies; they are supplying it more completely, and at lower rates." This study emphasized the capabilities of electric plants of moderate size, the author stating: "These small plants have shown that cheap electricity is not dependent on superpower projects, transmission lines, proximity to coal, oil, or some exceptional source of water power, but can be secured by any municipality larger than a village which is able to operate its own electric plant."

MUNICIPAL UTILITY PROFITS

Municipally owned utilities follow no universal earnings policy. Some have the objective of low rates, even at the expense of the tax payers; others try to be neither more nor less than completely self-sustaining; still others contribute to the general municipal finances, whether by free street lighting and water pumping, by expenditures for public improvements, or by cash payments to the general fund, even to the extent of eliminating property taxation for the ordinary operating costs of the city proper.

An important ruling affecting such policy was made in the latter part of 1934 by the New York Public Service Commission, in connection with a case involving the municipal electric plant in the village of Bonneville, N. Y. Under the Commission's power to regulate municipal electric plants it rendered a unanimous decision that such a plant is entitled to charge rates that will meet only the full cost of service. It said: "The purpose for which municipal corporations are created and governmental powers conferred upon them is in direct opposition to the theory that profits should be made out of their operation." The making of a profit which would go to reduce taxes or for other general municipal purposes was declared to be improper and to constitute "indirect and unfair taxation of consumers." Even a "profit" to the extent of a return on the investment is not permitted, excepting that bond interest is allowed to be met out of the plant's earnings, where there are any bonds. The plant in question had none. Amortization of bonds was not definitely ruled on, and, it seems, might be permitted. As to taxes, the village was permitted to charge their full equivalent as if the plant were privately owned. Such a rigid rate theory may be quite desirable under ordinary circumstances; but as a matter of legislative policy regarding home rule it might properly be left to the decision of the community itself.

HETCH-HETCHY

On Oct. 28 the first water from the Hetch Hetchy Reservoir in the Sierra Nevada mountains, 160 miles away, was delivered to San Francisco. This $100,000,000 project has been under way for 22 years. The death on Oct. 12 of M. M. O'Shaughnessy who, as engineer for the city of San Francisco, was known as the "Builder of Hetch Hetchy," cast a shadow on the celebration of its completion.

NEW YORK RAPID TRANSIT

In New York City the movement for unification of rapid transit facilities has been progressing, with indications that a purchase arrangement by the city for the Brooklyn-Manhattan Transit system may soon be achieved. Efforts to acquire the Interborough Rapid Transit system are not expected to be made until the BMT negotiations have been completed.

WATER SUPPLY

By Robert Spurr Weston

Consulting Engineer, Boston

FEDERAL WORK AND FINANCE

In 1933, work under the RFC became largely superseded by work under the PWA. By Oct. 27, 1933 about $30,000,000 had been allotted to non-Federal water works projects. By Nov. 1, 1934 this amount had been increased three-fold. In addition, about $1,600,000 had been allotted to Federal water works projects classed by the Division of Economics and Statistics as follows:

Kind	Non-Federal		Federal		Total	
	No. of Projects	Allotment	No. of Projects	Allotment	No. of Projects	Allotment
Water Mains	131	$10,688,097	26	$ 273,289	157	$10,961,386
Filtration Plants	39	7,061,000	2	344,004	41	7,405,004
Reservoirs	89	9,479,040	9	56,374	98	9,535,414
Complete Water Works	694	64,867,345	54	906,071	748	65,773,416
Totals	953	$92,095,482	91	$ 1,579,738	1,044	$93,675,220

There are also some water works included in the allotment of $50,000,000 to the Tennessee Valley Authority and in other legislative, executive and special allotments. Nearly all the allotments under the PWA have been made. On Nov. 1, 1934 only 3.4% of the bond contracts and agreements remained to be sent out to applicants. Naturally, the preliminary steps to securing a grant or loan under the PWA delayed the employment of the needy. This led to the allotment of $725,000,000 to the CCC and CWA. This allotment covered many water works projects.

At the end of 1934, Federal aid to new projects is being given by the FERA which supplies money for labor, the beneficiaries, municipal or state, furnishing materials, supervision and engineering. While careful and wise planning is difficult under this regime, necessities outweigh refinements and studied economies, as in other cases of emergency.

Under the PWA about a third of the largest cities have received allotments ranging from $10,771,000 to San Francisco to $53,000 to Dallas, Tex. Large grants were not restricted to large cities alone, grants of $300,000 or more being made to more than 20 smaller cities, including grants for water works of over $1,000,000 each to Reading, Pa., Springfield, Ill., and Eureka, Cal. and $1,000,000 to Tacoma, Wash. for mains.

One probable reason for the relative lack of participation in the allotments by the larger industrial centers is the decline in water consumption which came with the industrial depression, a condition favoring postponement of additional works. At present, however, there is evidence from most of the large industrial centers that recovery has begun. In Newark, N. J., with its varied industries, the consumption to Oct. 31, 1934 was 11.4% greater than for the corresponding period of 1933, and in Metropolitan Boston the consumption in October, 1934, was 4% higher than in October, 1933.

Many of the large works projected in the last 20 years have been completed or are approaching completion. Many projects were postponed for financial reasons, and even Federal aid has not kept new construction in step with growth in population.

When industry revives, consumption will increase at a super-normal rate as it has done before. Then, hasty steps must be taken in many cities. Conditions in Philadelphia, New York, Chicago, in northeastern New Jersey, in the large industrial centers of the mid-west and elsewhere, are ripe for such experiences.

NEW WORKS

The Hetch-Hetchy project for supplying San Francisco with 400,000,000 gallons of water daily and for generating 250,000 hp., conceived by the late John R. Freeman in 1912, reached an interesting stage on Oct. 28 with the arrival of the Tuolumne River water on the San Francisco peninsula after a course of 155 miles, including a 25.1-mile tunnel, the longest yet built by man. Unfortunately, M. M. O'Shaughnessy, who devoted 20 years to the construction of the project, which includes the dam at the 67,000,000,000-gallon reservoir that bears his name, died 16 days before this occurrence. So far, this work has cost about $100,000,000.

Colorado River Aqueduct. — Work on the Colorado River Aqueduct from the Colorado River at Parker, Ariz. to the Cajalco Reservoir is progressing. Over half the 91 miles of tunnels in the 241 miles of aqueduct, with its 65 miles of lined canal, 56 miles of covered conduits and 25 miles of valley crossings, have been completed.

Parker Dam.—In August, the contract for the Parker Dam and diversion tunnels, a link in this project, was awarded at $4,240,000. This dam is a most unusual structure in that only 85 of its 320 feet of height will be above the stream bed. It is of concrete of the arch type, 800 feet long at its crest, and is provided with power house and penstock tunnels. The power generated at this dam will be used for pumping at points along the aqueduct. Over 5,000 men have been at work on this $220,000,000 project, requiring new roads, water and telephone systems, camps, hospitals and other utilities.

The Bouquet Canyon Dam for the Los Angeles Aqueduct was completed at a cost of $4,000,000. Work has also been started on the Mono Basin Development which includes a conduit to divert Rush and other creeks to Great Lakes where a dam will be built and from which water will be carried through the Mono Craters to Owens River.

Quabbin Tunnel.—Across the continent, the Quabbin Tunnel, nearly 25 miles long, for the supply of Metropolitan Boston, wih additional works to cost $65,000,000, is practically finished. At the dike for the 420,000,000,000-gallon Quabbin reservoir, 31 concrete caissons have been completed, and the impervious earthen core has been carried across the valley. Bids have been received for completing the dike, comprising the placing of 2,500,000 yards of earthwork. At the site of the main Quabbin dam on the Swift River, two exploratory caissons have been sunk in the deepest part of the valley to lower the ground water preparatory to sinking the remaining 38 caissons. In addition, Chief Engineer Frank E. Winsor reports the completion and use of two miles of substitute highway and a sewer for protecting the intake on the Ware River already in service.

PURIFICATION PLANTS

A plant to purify 200,000,000 gallons daily is under construction at Milwaukee. At Toronto, the new 100,000,000-gallon Victoria Park plant to duplicate the present supply works is well under way. The Springwells plant for Detroit has been in operation since 1933. Other important new plants are at Burnt Mills, Md., at Hamilton and Conneaut, O., Wilmette and Jasper, Ill. and at Evansville, Wis., the latter a softening plant. These present clever adaptations to local conditions and most of them embody the latest ideas of treatment. In the Burnt Mills plant, R. B. Morse has departed radically from the usual rectangular arrangement of basins and filters and has designed an assembly of four concentric circles, the inner one containing the piping, the next one four uncovered filter units, the next one the coagulating basin and the outside one the filtered water basin. Each assembly has a capacity of 5 mgd. and the cost per mg. using steel and uncovered filters is much below that of other modern plants.

Refinement of plant design continues. Research on the hydraulics of rapid sand filtration and sand washing has resulted in a tendency toward the use of thinner layers of coarser and more uniform sand and higher rates of washing. This, of course, necessitates better treatment of water. At Detroit the washing rate is from 30 to 39 vertical inches per minute. This plant also shows improvements in basin design and filter equipment. The double bottom type of underdrain system is gaining in favor. At Toronto, the upper gravel layer will be cemented to prevent displacement. In zeolite softening plants the trend is toward the use of ''gel'' zeolites because of their higher efficiency and consequently the reduced size of softeners required.

In spite of the increasing use of zeolite softeners, the older Clark process, using lime, still holds its place. The practice of municipal softening is increasing as its economies become recognized. It is still in its infancy and has a promising future.

PUMPING PLANTS

Turbine, electric-motor, or diesel-engine-driven centrifugal pumps are almost universal in recent work, but in spite of the lowered cost of current and oil, modern steam plants using powdered coal and other economical fuels are often preferred.

WATER TREATMENT

Treatment of water apart from filtration has become increasingly important: first, as a requisite for efficient filtration and, second, because of the rising demand for water of better appearance. Activated carbon has become a most useful agent for removing odors which are not removable by aeration. Chlorination of raw water is also useful for deodorization while the ammonia-chlorine process is used more and more for extending the range of disinfection without at the same time producing offensive tastes that would result from the use of chlorine alone.

Further studies in physical chemistry and the hydraulics of mixing and coagulating basins have improved coagulation and reduced the size and cost of devices for preliminary treatment. New devices for the automatic control of both dry and liquid feeders have proved useful by refining the dosage and reducing the cost of chemicals and attendance.

The attention being paid to manganese, a concomittant of iron in waters and an element which received little attention 20 years ago, evidences the refinement in water purification practice. This element which forms brownish deposits, noticeably on the surfaces of new concrete aqueducts, is not only difficult to remove but interferes with tests for chlorine in water for the control of disinfection. The removal of manganese is greatly facilitated by oxidation in the presence of its own hydroxide.

CORROSION

The problem of corrosion is being attacked on all sides. In recently cleaned water mains, electrolytic deposition of bitumen from its colloidal aqueous solution by means of an electrode drawn through the main containing it is receiving much attention. The lining and coating of mains with bitumen and cement applied centrifugally is gaining in favor. Concrete pipe, in spite of its weight, is being extensively used in the larger sizes, while the new, light and easily laid asbestos-cement pipe is being tried out with much interest, although it is too new a material upon which to pass final judgment. There is an increasing use of small pipes of copper and other resistant metals.

Treatment of water with alkali is no longer regarded as a panacea for corrosion. Dr. Hale has shown at New York that excessive treatment of the municipal water promotes accumulations of rust and clogging of service pipes. The present tendency is to so treat the water with alkali as to avoid either objectionable corrosion on one hand or excessive accumulation on the other.

CONTAMINATION OF OPEN RESERVOIRS

Water works managers are realizing more and more the hazard of open distributing reservoirs. Not only birds, but sometimes human beings, contaminate the waters. Several dangerous conditions were detected in 1934. The remedy is to cover the reservoir or treat its effluent.

DISINFECTION BY SILVER

Considerable interest has been aroused by the Katydyn process of disinfection, which is the electrolytic application of metallic silver to water. Its great advantage over chlorination lies in the fact that it does not impart disagreeable tastes to the water. The process is proving serviceable in several small installations, although at present it is too costly in comparison with chlorine for large plants.

TREND OF SANITARY PROTECTION

Apart from the development of supplies for certain large districts in the east and west, the greatest attention is at present directed toward refinement and greater sanitary protection. The day is passing when waters of a satisfactory bacteriological nature and those made safe by purification, which are at the same time disagreeable in appearance, or unduly hard, will be tolerated. It is also true that storage or filtration alone will not be considered a sufficient safeguard. Another line of defense must be added. The trend is exemplified by the recent order of the New York State Department of Health requiring filtration of all surface waters, including those stored in large reservoirs, hitherto regarded safe and satisfactory.

ELECTRIC LIGHT AND POWER

By Gustav F. Wittig

Statistical Editor, *Electrical World*

MAGNITUDE OF THE INDUSTRY

Equipment and Power.—As a background for considering the operations of the electric light and power industry during 1934 it may be convenient to start with some data as to its magnitude, based largely on the census for 1932. The changes during the succeeding two years have been comparatively small. The physical equipment for generating electricity consists of about 4,300 power plants containing 48,000,000 hp. of machinery driven by steam, gas, oil and waterpower. The generators for converting this power into electrical form have a total rating of 34,600,000 kilowatts. As a yardstick, the total power developed at Niagara is about 1,500,000 hp., of which 1,000,000 is on the Canadian side. Installations on the United States side comprise about 500,000 horse power. The amount is limited by international agreement. Some of our largest cities —New York, Philadelphia, Chicago, Detroit and its environs use from 1,000,000 to 2,500,000 hp. each.

Transmission of Energy. — High-voltage circuits to the extent of 200,000 miles are operated to interconnect the power plants so as to permit of economical adjustments of load on the individual plants and to carry energy to distant load-points. In particular, much of this costly transmission-line construction is made necessary for the utilization of water power, the power sites being generally remote from the centers of population where the energy is consumed. Numerous substations for converting the power to lower voltage, an unknown amount of distribution circuits and service connections, probably several million miles in the aggregate, and meters for 25,000,000 customers constitute the balance of the major items.

Capitalization.—Of the fixed capital of $12,600,000,000, municipal establishments account for 4.2 per cent and commercial companies for the balance, which is about $12,100,000,000. This is equivalent to $100 per capita of population. About half is in the form of long-time debt, which therefore has behind it a large equity.

Public Investment.—The investment is widely distributed among individuals (estimates vary, but 2,000,000 seems a conservative figure) and institutions, insurance, educational and other—so that its soundness is vested with a larger measure of public interest than appears to be generally realized. The distinction should also be borne in mind between operating companies, which are in the true sense public utility establishments, and the holding companies which, through the acquisition of securities of operating companies, have been enabled to exercise more or less control over the latter and to issue their own securities on their holdings. In common with other public utilities the property investment is large compared with the annual revenue; to get one dollar in revenue requires about six dollars of investment. Consequently a very considerable fraction of the former is consumed in capital charges.

Employees and Wages.—On the human side is a staff of about 250,000 employees who receive yearly wages of $320,000,000. This is three times the cost of fuel.

Taxes.—Taxes have become a major item of expense. In the case of private corporations, which supply 94 per cent of the energy used, they are equivalent to five-sixths of the expenditures for salaries and wages.

Use of Water Power.—So much has been said about the desirability of using water power that it may be pertinent to point out that 36 per cent of the total energy generated in electric light and power plants during 1934 came from that source, and that in favorable years it has been as much as 40 per cent. These figures may be taken to represent the present economic balance between hydraulic and thermal energy, taking into account the distribution of population with reference to fuel deposits and sources of water power and the cost of capital for the plants and transmission systems required to bring the energy to the places where it is to be used.

A YEAR OF RECOVERY

Sources of Data.—Analysis of statistics so far as they have become available shows 1934 to have been distinctly a year of recovery. The data here given are condensed from tabulations in the *Electrical World* taken in part from figures announced by the Edison Electric Institute, supplemented by its own surveys. Those for 1934 are based on ten months' operations together with partial returns for the remaining two months. Despite a number of disquieting factors on the horizon, the signs of restored growth, reversing the downward trend during the earlier years of the depression, are unmistakable. They bring renewed hope not only for the power industry but for the entire industrial fabric with which it is interwoven.

Increase in Energy Output.—Most readily measurable is the 6 per cent increase over 1933 in energy output, and of 9 per cent over 1932. Starting on a level 10 per cent higher than at the beginning of 1933, the gain rose to nearly 20 per cent in March. In contrast with the usual decrease during spring, production steadily rose. In mid-summer it remained above the high mark reached in the spectacular up-rush of June, 1933. In September the customary autumn rise set in, but the increase was greater than usual and the year drew to a close with pro-

ENERGY OUTPUT OF CENTRAL STATIONS

(Millions of Kw.-Hr.)

	1929	1933	1934
Total generated	91,421	79,983	84,895
Fuel	59,031	47,533	54,203
Water-power	32,390	32,420	30,692
Total, incl. purchased	92,757	81,913	87,140
Sales, ult. users	75,294	65,754	70,730
Domestic	9,773	11,960	12,750
Small pwr. & lt.	13,106	12,475	13,100
Large pwr. & lt.	44,326	33,723	36,950
Munic. ltg. & misc.	2,450	2,931	2,880
Railways & railroads	5,640	4,665	5,050
Company rail depts.	1,279	699	740
Co. use and losses	16,184	15,460	15,770

duction outrunning that of any other except 1929, which it missed by a narrow margin. Energy sales at wholesale, representing mainly industrial use, advanced 9 per cent over the preceding year but are still 17 per cent less than in 1929. They cannot be expected to get back to former records until manufacturing resumes its stride, especially in the heavy industries.

New Domestic Consumption Peak. In the domestic field consumption was greater than ever before, 6.6 per cent more than in 1933 and fully 30 per cent more than in 1929. With the increasing use of appliances, notably refrigerators, the needs of domestic users in the summer-time have materially expanded. During the year 1,300,000 refrigerators were sold, bringing the total number of these appliances well in excess of 6,000,000. This is nearly one third of the number of homes receiving electric service. The additional energy, being in large part consumed during "off-peak" periods of the day and therefore sold at relatively low rates per kilowatt-hour, was one factor in bringing about an appreciable reduction in the national average rate for domestic use.

Revenue from domestic service has by no means kept up with energy sales. The increase over 1933 was only 3 per cent and over 1929 9 per cent. The average price per kilowatt hour has been steadily and strongly downward. It was 6.33 cents in 1929, 5.49 cents in 1933 and is now down to 5.30 cents. The effect of this progressive reduction has been to give the customer more and more energy while his annual bill for several years has been virtually constant at about $33.00, although the average use increased by more than a quarter from 500 kw-hr. in 1929 to nearly 630 kw-hr. in 1934. Although the home, office store and factory have considerably expanded their purchases of energy, the revenue from these combined sources was only 3.4 per cent more than in 1933, the estimated amount pending receipt of final returns being $1,833,250,000, or very close to that of 1932. This sum excludes intercompany sales. The increase over the preceding year was about $60,000,000 but this was more than absorbed by rising costs. Operating expenses alone increased by the same amount to $858,000,000 and in addition taxes rose by an amount that cannot yet be closely determined but was at least $25,000,000.

REVENUE FROM ULTIMATE CONSUMERS

(Millions of Dollars)

.	1929	1933	1934
Domestic.............	619	656	675
Small power and lt.....	556	500	510
Large pwr. & lt.........	613	465	496
Munic. ltg. & misc.....	99	109	107
Railways & railroads...	52	43	45
Total............	1,939	1,773	1,833

NUMBER OF CUSTOMERS

at End of Year

(Thousands of Dollars)

	1929	1933	1934
Domestic.............	19,967	20,004	20,521
Small pwr. & lt.........	3,598	3,697	3,734
Large pwr. & light and other...............	582	594	601
Total............	24,147	24,295	24,856

THE MORE EFFICIENT USE OF FUEL

Probably for the first time in the history of the industry the depression finally brought about a decrease in the total generator rating, retirement of obsolete equipment exceeding additions. The decrease was small in 1933 but rose to 200,000 kw. in 1934. The turn has, however, set in; installations to the amount of nearly 500,000 kw. are nearing completion and 1935 will presumably see a resumption of the usual increase, though not on the former scale.

Technical improvements have again made possible a diminution in the amount of fuel that has to be burned per unit of electrical energy generated. The economic significance is two-fold. The actual consumption of coal during the year was about 31,000,000 tons. At the rate prevailing so recently as 1920 more than 60,000,000 tons, or the equivalent in oil and natural gas, would have been required. As a matter of conserving this important natural resource the saving of 30,000,000 tons annually is impressive. On the other hand the utilization of water power has been adversely affected; as the cost of steam power is decreased, water-power developments become uneconomical unless capital charges on the investment in new plants and the necessary transmission lines are correspondingly smaller. Otherwise it is cheaper to burn fuel.

National records on the utilization of fuel go back to 1919, when the Geological Survey began collecting monthly statistics on energy output and fuel consumption. In that year a kilowatt-hour required 3.1 lbs. of coal. Now the same quantity of fuel will produce more than twice as much electrical energy, at the rate of 1.45 lbs. per kw-hr. That is the average. Individual plants do much better.

EMPLOYMENT

The nature of the power industry makes for stability of employment, which has in fact held up quite well throughout the period of reduced business. At the beginning of 1932, according to the Bureau of Labor Statistics, the employment index was only 10 per cent less than the 1929 average. For 1932 as a whole it was 17 per cent under 1929, for 1933 it averaged 22 per cent under and for 1934 it improved to 16 per cent under 1929. More important, it has been rising steadily since February. Payrolls in 1934 averaged 22 per cent under 1929, which indicates that full-time work prevailed, since the pay per employee works out to 93 per cent compared with 1929.

HOME SERVICE

During the earlier years of the depression the number of customers decreased somewhat, for the first time on record. The change reflected the "doubling up" of families, the vacating of homes and the closing of commercial and industrial places of business. Signs of improvement appeared in the summer of 1933. During 1934 additions numbered about 550,000—500,000 of them domestic users. Totals at the end of the year were 20,520,000 domestic, 3,730,000 small light and power, and 600,000 large light and power and other. The aggregate, 24,850,000, exceeds the previous maximum, in 1930, by 30,000. Electric service is supplied to 731,000 farms. This is the only group of consumers that has uninterruptedly increased in number; 18,000 were added in 1934. Farm customers are included in the statistics in the preceding paragraph.

GOVERNMENT COMPETITION

Construction of several power projects on a grand scale by the Federal Government or with the aid of Federal funds has caused serious concern. The completing of these projects will in a few years add several million kilowatts, concentrated in areas that already have a large margin of available capacity. Exact official data on the proposed ultimate developments do not appear to have been assembled, and in several instances are still indefinite. Approximately, the prospective ultimate installations may be listed as follows: Boulder Dam, 1,317,500 kv-a. (about 1,050,000 kw.); Grand Coulee, 250,000 kw.; Bonneville, 516,000 kw.; Fort Peck, 400,000 kw.; Seminoe, 30,000 kw. In the Tennessee Valley 2,000,000 kw. can be developed on the main stream and another 2,000,000 kw. on the tributaries. Norris Dam, on which work is well under way, is on one of the tributaries. Thus works are in progress that look to the installation of four to six million kilowatts, thereby adding the equivalent of one-eighth to one-fifth to existing facilities in the country as a whole. Within the territory affected by them they will multiply present capacities several fold, because the densely populated parts of the country are well beyond the reach of economical transmission.

Utility executives are trying to solve the problem as to how this energy is to be absorbed. The fear is that either the forcing of sales will be competitive with private enterprise and so will seriously affect investments, or the plants will be partly idle, at a loss to the taxpayers who will have several billions of dollars at stake. It is pointed out, for example, that the cost of the energy delivered in Southern California from Boulder Dam will not differ greatly from the cost at which it can be generated locally from fuel and that fuel-burning plants can be built gradually as the market is developed. The possible contingency of idle capacity has already obtruded itself: several municipalities, which have contracted for energy from Boulder Dam, have requested a postponement.

STREET AND HIGHWAY TRAFFIC REGULATION

BY ERNEST P. GOODRICH

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COMPARATIVE STATISTICS

Automobile registration, gasoline consumption and motor vehicle deaths increased during the first ten months of the year in comparison with 1933 and 1932. An all-time high figure in fatalities was reached in October, the fatalities for that month being as many as in an average three months of 1918.

Based upon data made available by the Automobile Chamber of Commerce and the National Safety Council it is estimated that motor vehicle registrations will reach 25,000,000 vehicles in 1934, an increase of about 3.5 per cent. Gasoline consumption will probably amount to 14,500,000,000 gallons or an increase of 6.3 per cent, while fatalities will exceed 33,000, corresponding with an increase of over 10 per cent. The gasoline consumption indicates increased mileage while the increase in fatalities is probably due to a combination of increased engine power and speed and to the increasing number of intoxicated drivers.

Drunken driving received special study under the auspices of the National Safety Council, the American Automobile Association and others. The Pittsburgh Bureau of Traffic Planning issued the following warnings: "to the Driver—'if you must drink don't drive'; to the pedestrian —'if you must drink don't walk.'"

PROGRESS IN SAFETY

The fourth National Conference on Street and Highway Safety, under the Chairmanship of the Secretary of Commerce, directed its attention primarily to improving the general traffic conditions of the country in the interests of safety. The progress made and still to be made in the direction of uniformity of laws and practices was stressed. An increase in the financial responsibility of automobile operators was deemed important. A reduction was made in the legal length of tracks or a combination of trucks and trailers. A new *Manual on Traffic Control Devices* was presented by a joint Committee representing both the Conference and the American Association of State Highway Officials, which was approved by the Conference. In this manual, special emphasis was given to the symbolic shape of the important signs. Minor changes were made in the lettering of the signs, and reflector buttons were emphasized for night use unless the sign was otherwise illuminated. Specific conditions were outlined under which a sign or traffic control signal was warranted. The pedestrian problem was more thoroughly covered. Signal locations were standardized, and definite specifications were presented for pavement and curb markings and for both safety and traffic islands.

The need of uniformity of practice throughout the country as to highway design and police control of traffic was stressed at the meeting of the International Association of Chiefs of Police. Such uniformity would secure material improvement in public safety.

A school for traffic officers was started in Evanston, Illinois with more than 100 students from eleven states. Additional cities operated traffic violators' schools. In the case of Wichita, Kan., the police court gave traffic violators the alternative of paying fines or attending school.

Some cities were so successful in their drives to decrease traffic accidents as to achieve reductions exceeding 50 per cent. Material reductions were always accompanied by greatly increased police supervision with a corresponding increase in the number of arrests. Motor-cycle squads, radio-equipped cars and better court administration were among the effective factors. New Orleans required all fire apparatus to obey the traffic signals. Milwaukee County in Wisconsin, and the State of Iowa, gathered statistics showing the need of pedestrian sidewalks adjacent to public highways, and that the number of public highway accidents go hand in hand with them. Much progress was made in the carrying of through routes through and around cities or through them on widened thoroughfares.

A report of the Nassau County Traffic Survey for June, states that the accident incidence to bicyclists on the public highways in that county was reduced 50 per cent by the installation of red reflectors on all new bicycles, following action of the National Convention of Bicycle Manufacturers.

The Planning Commission of Lynchburg, Va., submitted to the City Council a report which laid special stress on the visualizing of traffic safety needs, with numerous photographic illustrations of blind corner menaces.

Appropriate means used in securing highway safety was also demonstrated to enhance highway attractiveness. Typical examples include better design of signs, improved construction and planting.

Nearly 300 American cities with a total population of more than 40,000,000 officially entered the 1933 National Traffic Safety contest sponsored by the National Safety Council, and prizes were awarded early in 1934 for the best result secured in each of six groups. First, second and third prize-winners were selected, and other cities were given honorable mention. A grand prize was also awarded to the city which came nearest to doing for traffic safety all of the things practicable in that community. This contest was repeated during the year 1934, with a large increase in city enrollment.

BRIDGE APPROACHES

The new Tri-borough Bridge under construction in New York City showed the need of proper approaches, to which question intensive study was devoted. Certain parkways were extended to reach the bridge structure. These were carefully designed with separate one-way roadways, three traffic lanes in width, separated by a strip, and walks for pedestrians. Bridges over the parkway were also provided.

HIGHWAY LIGHTING

Unlighted highways were shown to be the cause in Baltimore of a high pedestrian accident risk. This fact was disclosed by studies of the local Illuminating Engineering Society. Accident records in the vicinity of New York where sections of Highways were lighted at one time and darkened at others, also demonstrated this fact.

MOTOR VEHICLE INSPECTION

Several cities and the State of Maryland established compulsory motor vehicle inspection. In the city of Memphis, a fee of 50 cents was charged but it was disclosed that the alignment inspection alone saved tire wear much more than the inspection fee. It was also shown in that city that the inspection reduced accidents by 25 per cent below the corresponding 1933 figures, in spite of an increase in the number of cars in operation, with 30 per cent increase in gasoline consumption.

TRAFFIC VIOLATIONS

The Chief of Police of Wichita,

Kan., devised a method to give written warnings to traffic violators. The violator was required to sign a slip which was thereafter filed at police head-quarters. A fourth warning was sufficient to bring a culprit into court. Drivers became very careful after the second or third warning. This courtesy method is largely used in England and could with advantage be extended to this country.

ICE TREATMENT AND SNOW REMOVAL

At the approach of the winter season the Maintenance Committee of the Highway Research Board published a report on the treatment of icy pavements, which was exceptionally explicit and suggestive. Chemicals such as rock salt and calcium chloride, and abrasive materials such as cinders and coarse sand were advocated for use under appropriate circumstances, which latter were carefully outlined.

Snow removal in New York City was the subject of intensive study during the winter of 1933 and 1934. New methods of checking contractors loads and for increased speed of snow removal were developed. In spite of an extraordinary snow fall, considerable improvement in traffic movements was secured.

Snow removal costs on California highways amounting to over $300,000 a year were computed to be justified on the basis of the daily return from the gas taxes which would be lost were traffic precluded by snow.

THE PARKING PROBLEM

Special studies of the parking problem disclosed much loss of time after arrival at destination in discovering parking space and walking from the place of parking to the ultimate destination. Over-all speeds as low as ten miles an hour between origin and destination were disclosed, when the legal driving speed limit was 23 miles an hour, and the actual driving speed at certain times as high as 30 miles. If time is a valuable consideration, it was demonstrated the use of garages or open parking lots for a reasonable fee would be sound investments both for the garages and the drivers.

TRAFFIC SIGNALS

Philadelphia developed a new and succesful signal-timing system applicable to two- and three-way intersections. This was based upon careful traffic movements which required at least three or more phases.

An accomplishment of outstanding importance in the field of traffic control was the new flexible progressive system of traffic signals installed during the year on Michigan Avenue in Chicago to replace the old simultaneous timing. Some of the new features which the signal provides are:

1. Three-dial control for changing all timing to favor rush direction traffic.
2. Flashing green periods to indicate width of ''through'' band and to control speeds.
3. Timing on one side of the street, at many intersections, entirely indedependent of that on the other side.
4. Walk indications for pedestrians.
5. Two time-lengths of the amber or caution period.
6. Supervisory control at a central point with a spare supervisory unit at another point.

ROAD SPEEDS

Average speeds on the thoroughfare were approximately doubled, being increased from 12 to 16 miles an hour to about 24. The Federal Government allocated over $1,250,000,000 for the increase of street and highway safety, in connection with its distribution of PWA funds for the promotion of work for the unemployed, in grade crossing elimination, roadway widening, etc. Many traffic surveys were carried out by CWA workers and much valuable information secured. The Federal Civil Works Administration created a special division to promote work and make allotments of Federal funds. Photographic methods of studying vehicular speeds and traffic delays were developed and applied by many technicians. The National Safety Council promulgated a schedule of critical speeds for highway curves of various radii. Corresponding superelevations were also indicated. A special manual for examiners of those applying for drivers' licenses was also put out by the Council.

The Erskine Bureau of Street Traffic Research of Harvard University issued a *Street Traffic Bibliography* of particular value for technicians.

MEETINGS AND RESEARCH

The Institute of Traffic Engineers increased its membership both internationally and nationally during the year and held a highly valuable June meeting; many papers on different developments in the field of Traffic Engineering together with valuable committee reports and discussions being submitted.

Questions of Traffic Safety featured the sessions of the Highway Research Board, which was attended by 300 highway technicians in Washington early in December. Papers included studies of the relations between accidents and roadway widths, questions on skidding, on curves and tangents for different kinds of pavements, the influence of artificial light on safety, and the effect of shape of sign on reaction time.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Water Works Assn., 29 W. 39th Street, New York City.

International Assn. of Fire Chiefs, Police Headquarters, Philadelphia.

National Electric Light Assn., 420 Lexington Avenue, New York City.

National Parks Assn., 1512 H St., N. W., Washington, D. C.

National Public Service Corporation, 57 William Street, New York City.

Park Assn. of New York City, Inc., 122 E. 22nd St., New York City.

DIVISION IX

DEFENSE AND ARMAMENT

MILITARY PROBLEMS OF THE UNITED STATES

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

ARMY STRENGTH

Under the current War Department Appropriation Act it has been decreed by Congress that the commissioned strength of the Army shall not exceed 11,750 officers. Before separations from the service were made to meet the dictates of this Act, the strength of the Regular Army on June 30, was 12,212 officers and 117,517 enlisted men (exclusive of Philippine Scouts). The National Defense Act of 1920 fixed the limits of strength at 18,000 officers and 280,000 enlisted men.

In order to man the coast defenses, to provide for proper staffs at schools, headquarters, and supply installations, to furnish the National Guard, the Officers' Reserve Corps, and the Reserve Officers' Training Corps with instructors, to garrison posts in the Philippines, Hawaii, Puerto Rico, Alaska and the Panama Canal Zone, the Army Strength is drawn upon freely. When all of these necessary and important demands have been met, there remains available on the mainland a combat element of about 55,000, men and officers, and this small force is spread thin over the widely scattered military posts in the United States. The best military minds of the country, trained to recognize and evaluate the requirements of proper national defense, have contended consistently that the least force which can adequately perform the duties of the Regular Army should consist of 14,000 officers and 165,000 enlisted men. Necessary emergency expenditures coincident with the accomplishment of the recovery program preclude the realization of these strength figures at present. However, postponement of a definite increase in the strength of our military establishment is fraught with risk, and national security should not be too long jeopardized because of economic conditions.

PROMOTION OF OFFICERS

The promotion situation, always a grievous problem, has been steadily growing worse for all commissioned personnel with the exception of those on duty in the Medical Department and the Chaplains' Corps where separate promotion lists are maintained. Many highly efficient officers are submerged indefinitely in the lower grades. There is definite loss in this situation both to the individual and to the Government; for the individual the bad effect is manifested in lowering of morale; for the Government the loss is very direct in that such officers are wasted on routine duties instead of being, by virtue of higher rank, assigned to specialized tasks for which they are mentally and professionally competent. A General Council has studied this promotion stagnation problem very thoroughly and has prepared for the Congress a series of amendments to existing law, destined to alleviate a thoroughly intolerable situation.

PAY OF OFFICERS

Since 1908, there has been only one slight increase in the rate of compensation of the Army officer. Present pay schedules, particularly in the lower grades, are relatively too low. Other Government servants, over the same period of time, have been materially advanced in salary, but the pay of the Army has remained practically stationary.

CIVILIAN CONSERVATION CORPS

To accomplish the aims of this movement, 3,132 Regular Army officers (including 148 medical officers and 21 chaplains and 5,176 enlisted men) were withdrawn from their regular duties and assigned to the Civilian Conservation Corps. This action caused immediate suspension of much of the Army's regular peacetime training program. To solve the problem thus created, a plan was put into operation whereby Reserve officers were called to active duty to relieve Regular officers. This effort was successful, and at the present time there are on duty with the Civilian Conservation Corps only 414 Regular Army officers (including 40 medical officers and 7 chaplains) and 492 enlisted men, whereas Reserve officers assigned and actively engaged on Conservation Corps work now number 4,400.

ENGINEERING

Secretary of War's Report.—The engineering problems of the Army are, as a rule, closely interwoven with possible advantage or disadvantage to communities of citizens scattered over vast areas of our country. Not only engineering data must be studied but social, political, and economic factors must be accurately evaluated before satisfactory solutions can be achieved. In his annual report, the Secretary of War, George H. Dern, reviewed the engineering tasks the Army is seeking to accomplish at present, and he shows concisely what these projects mean to us nationally. A portion of Mr. Dern's report follows:

Inland Waterway Projects.—''Conspicuous among the civil-works activities of the War Department is the grand plan for improving our inland waterways and bringing to the interior of the continent the benefit of cheap water transportation. The principal feature of that program, as now set up, are the following:

''(1) To improve the navigability of the Mississippi River for modern barge transportation from its mouth to St. Paul and Minneapolis, Minn.

''(2) To improve the navigability of the Missouri River for barges from its mouth to Sioux City, Iowa.

''(3) To improve further the barge navigability of the Illinois waterway, which constitutes part of the Lakes-to-the-Gulf waterway.

''(4) To improve the Great Lakes-St. Lawrence seaway for the purpose of bringing ocean-going ships to Great Lakes ports.

''The Ohio River and some of its tributaries have already been improved and are carrying a large volume of commerce at exceedingly low costs.

''When this vast program shall have been completed, it will give the United States the most magnificent system of improved inland waterways in the world. It is confidently expected that the resultant cheap water transportation will not only reduce freight rates on farm products but will encourage industry to locate in the midst of agriculture, to the advantage of both.''

Upper Mississippi.—''Navigation on the upper river (above St. Louis) has proved precarious, especially during recent years, because the natural stream flow does not afford a safe, dependable channel of sufficient depth. Traffic has been repeatedly interrupted by low water. To overcome this handicap it has been deemed necessary to construct a series of locks and dams in order to provide a reliable 9-foot channel for barge navigation. When the upper Mississippi project is completed there will be 17 of these dams, which will convert the stream into a chain of lakes. The project is about half finished and 13 locks and dams are now under construction.

''**The Missouri River,** which, from time immemorial has, by shifting its course during high-water periods, destroyed annually 7,000 to 8,000 acres of fertile valley lands, has been completely stabilized for 400 miles from its mouth to Kansas City, through the dike and revetment system of channel constriction. Instead of the old uncontrolled river, sometimes 1½ miles in width, full of snags and bars, it now runs in regular curves between parallel banks, with a clear, unobstructed navigation channel. Completion of the work for another 80 miles from Kansas City to St. Joseph is in sight within the present fiscal year. Work is now concentrated on the 180-mile stretch between St. Joseph and Omaha, and a substantial amount of work has also been undertaken in the neighborhood of Sioux City. The main objective, of course, is to bring the benefits of low-water transportation costs to this great agricultural area.

''However, it has been ascertained that constricting the channel and stabilizing the banks of the Missouri will not suffice to provide the desired depth for navigation at all seasons of the year. In order to overcome this drawback, the Fort Peck Dam is being constructed on the upper reaches of the Missouri River in Montana. This enormous dam will create a reservoir to impound the waters of the upper Missouri during the flood season. The gradual release of these waters at other seasons of the year will provide a regulated and uniform flow to insure adequate channel depths for water transportation. Holding back the flood waters should also practically eliminate destructive inundations in the lower reaches of this river.

''The Fort Peck Dam will incidentally furnish a large output of cheap power and, in a more limited degree, will furnish water for irrigation purposes and for municipal and domestic uses. Funds for this project were received by Treasury warrant on October 31, 1933. On the same day 341 men were at work. Within a year a complete town for the accommodation of 4,000 employees has been built, 14 miles of railroad and a bridge across the river have been completed, a 183-mile power transmission line has been constructed, work on four 28-foot diversion tunnels is in full progress, a steel sheet pile cut-off wall across the dam site has been driven, stripping for foundations has been finished, and dredges to pump 95,000,000 cubic yards of material into the body of the dam are approaching completion. The expenditures to October 31, 1934, have been $17,000,000, and have provided direct employment for over 5,000 persons, and indirect employment for probably 12,000 more.''

Illinois River.—''On the Illinois River two more locks and dams are necessary and when these two structures shall have been installed, navigation on the Illinois waterway will be safe with the minimum contemplated diversion from Lake Michigan.

''**The Great Lakes-St. Lawrence Seaway project** is an international undertaking and cannot be commenced until the pending treaty has been ratified by the Senate and by the Canadian Government. It is, however, an integral part of our Government's comprehensive plan for inland waterway improvement. When authorized it will be built by the War Department in conjunction with the Canadian Government.''

Flood Control.—''On the lower Mississippi River (below St. Louis) a navigable channel is being maintained by bank stabilization, levee construction, and dredging. This is a continuing operation of considerable magnitude, which is closely associated with the Mississippi River flood-control project. From the confluence of the Ohio to the Gulf of Mexico, the flood-control works initiated after the great flood of 1927, are now so far advanced that only a flood of extraordinary magnitude can menace the rich alluvial lands of the valley. This does not imply that the entire project has been completed, for much remains yet to be done. Nevertheless, the efforts of generations have already been successful in converting large areas of disease-breeding swamps into a rich farming country, most of which will eventually be fully protected against devastating floods.''

INSULAR DEPENDENCIES

Philippine Islands.—Although the Governor General of the Philippines was able to report during the year that there was general freedom from suffering due to individual want and destitution, nevertheless he was faced with certain distressing economic factors for solution. The principal products of the islands all decreased in selling price during the year with an attendant drop, of course, in income. In the face of this condition, local insular governments manifested a definite trend toward lowering revenue taxes without making corresponding reductions in expenditures. With the help of the Philippine Legislature, the Governor General attacked the problem of budget balancing and succeeded in making the various departments and bureaus live within their income.

Puerto Rico.—The economic situation of Puerto Rico presents difficulties not readily solved. A constantly and rapidly increasing population does not have any industrial outlet because the activities of the island are predominantly agricultural. Wages paid, because of the surfeit of labor available, are too low and living standards are far from satisfactory. In addition to the unemployment problem, the insular government has had to contend with perplexing issues that have arisen through the application of the Jones-Costigan Act, making sugar beets and sugar cane basic agricultural commodities. Sugar quotas allocated to Puerto Rico under this Act called for a reduction in sugar output of the island below the previous crop estimates.

On July 29, 1934, the Department of the Interior took over from the War Department the administration of the civil affairs of Puerto Rico.

INLAND WATERWAYS CORPORATION

This corporation is charged specifically with fostering and preserving both rail and water transportation. Cheap transportation, if achieved, would guarantee cheap assembly of raw materials for manufacturing processes. Concomitant with this would result increased pay rolls, decreased unemployment, and the raising of living standards for workers in large industrial centers.

Throughout the first 15 years of the present century the railroads fought river traffic until they were successful in clearing the inland waterways of all freight competition. This was accomplished by non-cooperation in the making of joint rail and water rates and by granting much lower rail freight rates to cities and towns on waterways than to other points. When river traffic was thus put out of business, rail rates were raised. Private capital was naturally reluctant to venture into the field of redeveloping river traffic in the face of such tactics. The Government, however, accepted the issue and sought to solve its problem by the creation of the Inland and Coastwise Waterways Service which operated under the Railroad Administration until 1920. From 1920 until 1924, the policy of developing water transportation was one of the duties imposed directly upon the Secretary of War. In 1924, Congress passed an act creating the Inland Waterways Corporation to carry on this task.

When depressed business conditions, first evidenced in 1929, began to take their toll, much of the gain accomplished by the Corporation was swept away by the struggle for existence waged among the competing forms of transportation. All cooperation by the railroads with the barge lines in the establishment of satisfactory joint rates ceased. Therefore, the present problem of the Inland Waterways Corporation is the achievement of a self-supporting rate structure. This entire problem has engaged the personal attention of the Secretary of War who, in his annual report, recommends for the consideration of Congress the following enunciation of policy:

''It is hereby declared to be the policy of Congress to promote, encourage, and develop all forms of transportation, to the end that the public shall have the best and cheapest transportation system available, and that participating carriers in joint service performed shall receive for their part of the service performed a compensatory revenue.''

IX. DEFENSE AND ARMAMENT

ORGANIZATION OF THE ARMY

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College.

THE WAR DEPARTMENT

The War Department, the managing agency of the Army of the United States, is presided over by the Secretary of War, a civilian answerable directly to the President. The Secretary (George H. Dern) is assisted by the Chief of Staff (General Douglas MacArthur), who supervises the military functions, and by the Assistant Secretary of War (Harry H. Woodring). Under this combined direction operate the General Staff and the various arms and branches of the Army. The chiefs of these several arms and branches transmit advice to the Secretary of War through the Chief of Staff and the Deputy Chief of Staff (Major General Hugh A. Drum).

THE GENERAL STAFF

Composition and Duties. — The General Staff is composed of officers who are selected from all arms and branches of the service. By extended training and specialized schooling, these officers are developed professionally to comprehend all phases of the general problems submitted to them for study. From these studies, they are required to present to their superiors broad and unbiased conclusions for the best interests of the service. On the other hand, the chiefs of the combatant branches and the supply and administrative departments are specialists whose forces are trained to give technical and specific advice to the Secretary of War, through the Chief of Staff, concerning particular conditions confronted. None of the officers of the General Staff or heads of arms or departments enjoys the right to command. The duties of each are advisory, supervisory, or administrative. The chain of command is direct from the President of the United States to the Corps Area Commanders in manipulating the Army of the United States. The Secretary of War, however, may give orders in the name of the President to the nine areas of control in the United States proper and to the three other areas beyond the continental limits.

Command Divisions.—The General Staff consists of five divisions composed of officers of the Regular Army, National Guard, and Organized Reserves. The G-1 Division (Brig. Gen. Andrew Moses, Assistant Chief of Staff, G-1) is concerned with personnel, the man-power of the Army and nation. The G-2 Division (Col. Alfred T. Smith) is concerned with worldwide information, collecting, evaluating, and employing it for the good of the service. The G-3 Division (Brig. Gen. John H. Hughes, Assistant Chief of Staff, G-3) is concerned with the operations and training of the Army. The G-4 Division (Maj. Gen. Robert E. Callan, Assistant Chief of Staff, G-4) is concerned with the housing and maintenance of the Army. The War Plans Division (Brig. Gen. Charles E. Kilbourne, Assistant Chief of Staff, W. P. D.) is concerned with plans for adequate national defense, both at home and in our island posessions.

ADVISORY BODIES

Combatant.—The chiefs and officers of the combatant arms and the heads of departments and services also function as advisors to the Secretary. The combatant branches, with their heads, are: Infantry, Maj. Gen. Edward Croft; Cavalry, Maj. Gen. Leon B. Kromer; Field Artillery, Maj. Gen. Upton Birnie; Coast Artillery, Maj. Gen. William F. Hase; Air Corps, Maj. Gen. Benjamin D. Foulois; Engineer Corps, Maj. Gen. Edward M. Markham; Signal Corps, Maj. Gen. Irving J. Carr.

Non-combatant.—The non-combatant branches, with their heads, are: The Adjutant General's Department, Maj. Gen. James F. McKinley; The Inspector General's Department, Maj.

Gen. John F. Preston; The Judge Advocate General's Department, Maj. Gen. Arthur W. Brown; The Quartermaster Corps, Maj. Gen. Louis H. Bash; The Finance Department, Maj. Gen. Frederick W. Coleman; The Medical Department, Maj. Gen. Robert U. Patterson; The Ordnance Department, Maj. Gen. William H. Tschappat; The Chemical Warfare Service, Maj. Gen. Claude E. Brigham; The Bureau of Insular Affairs, Brig. Gen. Creed F. Cox; and the National Guard Bureau,* Maj. Gen. George E. Leach.

CORPS AREAS AND DEPARTMENTS

For command and control, the United States and its possessions are divided into Corps Areas and Departments as follows: First Corps Area, including Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, commanded by Maj. Gen. Fox Conner; Second Corps Area, including New York, New Jersey, Delaware, and Puerto Rico, by Maj. Gen. Dennis E. Nolan; Third Corps Area, including Pennsylvania, Maryland, Virginia, and District of Columbia, by Maj. Gen. Paul B. Malone; Fourth Corps Area, including North Carolina, South Carolina, Georgia, Florida, Alabama, Tennessee, Mississippi, and Louisiana, by Maj. Gen. George V. H. Moseley; Fifth Corps Area, including Ohio, West Virginia, Indiana, and Kentucky, by Maj. Gen. Albert J. Bowley; Sixth Corps Area, including Illinois, Michigan, Wisconsin, Jefferson Barracks and Arcadia Target Range in Missouri, by Maj. Gen. Preston Brown; Seventh Corps Area, including Missouri (Arcadia Range and Jefferson Barracks excepted), Kansas, Arkansas, Iowa, Nebraska, Minnesota, North Dakota, and South Dakota, by Maj. Gen. Frank R. McCoy; Eighth Corps Area, including Texas, Oklahoma, Colorado, New Mexico, Arizona, and Fort Francis E. Warren in Wyoming, by Maj. Gen. Johnson Hagood; Ninth Corps Area, including Washington, Oregon, Idaho, Montana, Utah, Nevada, California, Alaska, and Wyoming (except Ft. Warren), by Maj. Gen. Malin Craig; The Hawaiian Department, by Maj. Gen. Briant H. Wells; the Philippine Department, by Maj. Gen. Frank Parker; The Panama Canal Department, by Maj. Gen. Harold B. Fiske. These areas and departments are subdivided into tactical divisions and brigades.

ARMY HEADQUARTERS

Under the Four-Army Plan, the following are designated as Army Headquarters: First, Governors Island, N. Y. (Maj. Gen. Dennis E. Nolan). Second, Chicago, Illinois (Maj. Gen. Preston Brown). Third, Fort Sam Houston, San Antonio, Texas (Maj. Gen. Johnson Hagood). Fourth, Presidio of San Francisco, California (Maj. Gen. Malin Craig).

ARMY STRENGTH

The strength of the Army of the United States on June 30, 1933, was: Organized Reserves, 126,074 officers (including 11,717 officers and enlisted men in the National Guard who held commissions in both the National Guard and the Reserve Corps) and 4,646 enlisted men; National Guard, 13,309 officers, 198 warrant officers, and 171,284 enlisted men. Regular Army, 12,283 officers (including 66 Philippine Scouts and 5 Regular Army Retired, who were on active duty), 869 warrant officers, and 123,823 enlisted men (including 6,306 Philippine Scouts).

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*Although the National Guard is, of course, a combatant organization, the National Guard Bureau is here properly listed under the heading "Non-combatant."

STRENGTH OF THE REGULAR ARMY OF THE UNITED STATES JUNE 30, 1933, AND JUNE 30, 1934, AND LOSSES DURING THE FISCAL YEAR INTERVENING

Arm or Service	Strength June 30, 1933		Strength June 30, 1934		Losses													
					Officers										Warrant officers			
										Died								
	Officers	Enlisted men	Officers	Enlisted men	Retired	Resigned	Discharged[1]	Dismissed	Dropped, absent without leave	Of disease	Of accident	Suicide	Undetermined	Total	Retired	Resigned	Died of disease	Total
General officers of the line	67	....	67	....	8	....	....	....	....	1	....	....	....	9	....	....	....	....
General Staff Corps	227	....	224	....	2	....	....	....	....	1	1	....	....	4	....	....	....	....
Adjutant General's Department	87	....	93	....	5	....	....	....	....	....	....	....	....	5	....	....	....	....
Inspector General's Department	40	....	38	....	1	....	....	....	....	2	....	....	....	3	....	....	....	....
Judge Advocate General's Department	88	....	92	....	1	....	....	....	....	....	....	....	....	1	....	....	....	....
Quartermaster Corps	708	7,448	727	7,449	27	....	....	....	....	2	....	....	....	29	....	....	....	....
Medical Department	1,228	6,521	1,238	6,594	42	5	....	....	1	5	1	....	....	54	....	....	....	....
Finance Department	119	371	126	377	4	....	....	1	....	1	....	....	....	6	....	....	....	....
Corps of Engineers	449	4,213	458	4,251	3	....	....	....	....	2	....	1	....	6	....	....	....	....
Ordnance Department	270	2,065	271	2,032	4	....	....	....	....	....	2	....	....	6	....	....	....	....
Signal Corps	206	2,514	211	2,563	1	....	....	....	....	....	....	....	....	1	....	....	....	....
Chemical Warfare Service	77	413	82	420	....	....	....	....	....	1	....	....	....	1	....	....	....	....
Bureau of Insular Affairs	4	....	4	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chaplains	120	....	120	....	3	2	....	....	....	....	....	....	....	5	....	....	....	....
Professors, U. S. Military Academy	8	....	8	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cavalry	572	7,695	580	7,694	9	3	....	....	....	2	2	1	....	17	....	....	....	....
Field Artillery	974	14,258	989	14,463	12	3	....	....	....	4	1	1	1	22	....	....	....	....
Coast Artillery Corps	728	12,160	728	13,072	5	3	....	1	....	....	....	1	....	10	....	....	....	....
Infantry	2,348	39,049	2,358	39,476	33	10	2	2	....	2	2	....	....	51	....	....	....	....
Air Corps	1,320	13,497	1,307	14,314	13	2	1	....	....	....	12	....	....	28	....	....	....	....
Detached list	2,587	5,186	2,491	4,812	37	1	....	....	....	11	5	1	....	55	....	....	....	....
Total, less Philippine Scouts	12,227	115,390	12,212	117,517	210	29	3	4	1	34	26	5	1	313	....	....	....	....

Philippine Scouts:																		
Judge Advocate General's Department	1	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Quartermaster Corps	14	433	14	429	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Medical Department	....	311	....	306	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Finance Department	....	6	....	6	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Corps of Engineers	5	321	5	319	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Ordnance Department	....	47	....	45	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Signal Corps	2	126	2	121	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cavalry	3	562	3	559	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Field Artillery	7	984	7	960	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Coast Artillery Corps	9	1,271	9	1,248	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Infantry	27	2,337	25	2,313	3	....	....	....	....	....	....	....	....	3	....	....	....	....
Air Corps	2	....	....	....	....	....	....	....	....	1	....	....	....	1	....	....	....	....
Total	70	6,398	66	6,306	3	....	....	....	....	1	....	....	....	4	....	....	....	....
Grand total	12,297	121,788	12,278	123,823	213	29	3	4	1	35	26	5	1	317	....	....	....	....
Warrant officers:																		
Army mine-planter service	39	....	40	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1
Band leaders	86	....	84	....	....	....	....	....	....	....	....	....	....	....	1	....	1	2
Others	801	....	745	....	....	....	....	....	....	....	....	....	....	....	46	3	7	56
Total	926	....	869	....	....	....	....	....	....	....	....	....	....	....	48	3	8	59
Retired, on active duty:																		
Regular Army	4	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Philippine Scouts	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Total	4	....	5	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Aggregate	13,227	121,788	13,152	123,823	213	29	3	4	1	35	26	5	1	317	48	3	8	59

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[1] Includes 1 honorably discharged.

Arm or Service	Losses (Continued)																	
	Enlisted Men																	
	Retired	Discharged																
		Expiration of service	Disability	By sentence of general courtmartial	Fraudulent Enlistment						Convenience of Government							
					Dependency concealed	Marriage concealed	Disability concealed	Prior service concealed	Criminal record concealed	Alien citizenship concealed	To enter U. S. Naval Academy	To accept civil appointment	To accept commission	To enter U. S. Soldiers' Home	To enter U. S. Military Academy	To reenlist for foreign service or special detail	Completion of flying course	Disqualified as flying cadet
General officers of the line	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
General Staff Corps	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Adjutant General's Department	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Inspector General's Department	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Judge Advocate General's Department	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Quartermaster Corps	46	1,735	95	52	2	12	4	1	2	....	....	....	....	5	....	187	....	....
Medical Department	27	1,520	110	34	3	14	1	1	1	....	....	....	4	3	1	120	....	....
Finance Department	6	80	3	....	....	....	....	....	....	....	....	....	....	....	....	10	....	....
Corps of Engineers	14	783	66	30	3	3	1	1	1	1	....	....	....	1	....	139	....	....
Ordnance Department	27	522	25	11	1	4	....	....	1	....	....	....	....	4	....	57	....	....
Signal Corps	10	506	27	8	....	7	1	....	....	....	....	....	....	....	....	36	....	....
Chemical Warfare Service	3	103	5	....	....	1	....	....	....	....	....	....	....	....	....	5	....	....
Bureau of Insular Affairs	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Chaplains	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Professors, U. S. Military Academy	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Cavalry	39	2,222	86	72	1	15	10	....	....	....	....	....	....	1	3	75	....	....
Field Artillery	35	3,563	195	134	9	26	16	5	1	1	....	....	....	2	....	293	....	....
Coast Artillery Corps	45	1,968	291	81	8	26	11	8	2	....	1	1	....	14	6	247	....	....
Infantry	135	8,629	571	250	27	69	21	17	15	6	....	2	....	30	16	885	....	....
Air Corps	27	3,257	153	56	4	23	7	1	2	....	....	3	....	9	3	311	61	212
Detached list	80	1,271	31	17	1	3	1	1	....	....	....	....	....	3	6	90	....	....
Total, less Philippine Scouts	494	26,159	1,658	745	59	203	73	35	25	8	1	6	4	72	35	2,455	61	212

Philippine Scouts:																		
Judge Advocate General's Department																		
Quartermaster Corps	7	101	4													1		
Medical Department	7	106	8	1														
Finance Department		3																
Corps of Engineers	3	55	2															
Ordnance Department	2	13	1															
Signal Corps		28	2															
Cavalry	20	86	10	2														
Field Artillery	25	106	6	1														
Coast Artillery Corps	84	243	16									1						
Infantry	54	367	31	1								1						
Air Corps																		
Total	202	1,108	80	5								2				1		
Grand total	696	27,267	1,738	750	59	203	73	35	25	8	1	8	4	72	35	2,456	61	212
Warrant officers:																		
Army mine-planter service																		
Band leaders																		
Others																		
Total																		
Retired, on active duty:																		
Regular Army																		
Philippine Scouts																		
Total																		
Aggregate	696	27,267	1,738	750	59	203	73	35	25	8	1	8	4	72	35	2,456	61	212

Arm or Service	Losses (Continued)																	
	Enlisted Men (Continued)																	Returned from desertion
	Discharged (Continued)								Died					Deserted	Dropped, suspended sentence, general courtmartial	Total		
	Conv. of Gov. (Continued)		Dependency, sec. 29, National Defense Act	Minority	Inaptness or undesirable habits or traits of character	Purchase	Sentence to imprisonment by civil court	Desertion	Of disease	Of accident	Drowned	Suicide	Homicide					
	Returned from foreign service having less than 1 year to serve	Special cases																
General officers of the line	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
General Staff Corps	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Adjutant General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Inspector General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Judge Advocate General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Quartermaster Corps	144	1	31	2	68	423	25	14	22	12	4	6	1	154	13	3,061	71	
Medical Department	119	...	38	4	93	408	22	8	20	9	1	9	1	234	19	2,824	97	
Finance Department	...	...	...	...	...	12	...	...	2	...	...	...	...	...	...	113	1	
Corps of Engineers	126	...	19	9	27	160	5	4	11	3	...	1	...	162	6	1,576	65	
Ordnance Department	55	...	7	...	12	89	12	1	2	2	1	2	...	34	1	870	18	
Signal Corps	46	...	14	...	14	155	5	...	3	2	1	1	...	45	2	883	20	
Chemical Warfare Service	19	...	5	...	...	12	1	1	1	...	...	...	...	17	...	173	6	
Bureau of Insular Affairs	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Chaplains	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Professors, U. S. Military Academy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Cavalry	17	3	48	3	77	309	38	25	17	10	1	4	1	452	55	3,584	186	
Field Artillery	339	...	108	10	114	626	89	29	29	19	1	1	2	775	73	6,495	313	
Coast Artillery Corps	734	1	87	3	100	503	41	16	17	6	...	1	...	229	23	4,470	96	
Infantry	1,064	30	250	15	470	2,017	169	58	78	27	9	22	5	1,483	129	16,499	521	
Air Corps	310	1	77	9	63	824	44	7	29	40	2	4	2	211	12	5,764	101	
Detached list	9	...	7	...	12	165	6	2	13	4	...	5	1	61	...	1,789	30	
Total, less Philippine Scouts	2,982	36	691	55	1,050	5,703	457	165	244	134	20	56	13	3,857	333	48,101	1,525	

Philippine Scouts:																	
Judge Advocate General's Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Quartermaster Corps	...	...	...	...	...	7	...	...	...	...	...	...	...	...	...	120	...
Medical Department	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	124	...
Finance Department	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...
Corps of Engineers	...	...	...	...	...	3	...	...	2	1	...	...	...	1	...	67	1
Ordnance Department	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	17	...
Signal Corps	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	33	...
Cavalry	...	...	...	...	2	5	...	...	1	...	...	...	...	...	...	126	1
Field Artillery	...	...	...	...	...	9	...	...	6	1	...	...	...	1	...	155	...
Coast Artillery Corps	...	...	...	...	2	15	...	...	2	...	1	...	...	2	1	367	...
Infantry	...	...	...	...	2	26	1	...	...	...	...	1	...	...	...	484	...
Air Corps	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	...	...	...	...	6	71	1	...	11	2	1	1	...	4	1	1,496	2
Grand total	2,982	36	691	55	1,056	5,774	458	165	255	136	21	57	13	3,861	334	49,597	1,527
Warrant officers:																	
Army mine-planter service	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Band leaders	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Others	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Retired, on active duty:																	
Regular Army	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Philippine Scouts	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aggregate	2,982	36	691	55	1,056	5,774	458	165	255	136	21	57	13	3,861	334	49,597	1,527

STRENGTH OF THE REGULAR ARMY BY CORPS AREAS

Corps Area, Department, or Country	July, 1933			June, 1934		
	Officers	Warrant Officers	Enlisted Men	Officers	Warrant Officers	Enlisted Men
First Corps Area	461	58	3,909	472	54	3,674
Second Corps Area[1]	1,194	98	11,389	1,206	95	12,087
Third Corps Area	1,846	118	11,251	1,903	115	11,328
Fourth Corps Area	1,159	70	11,261	1,159	63	11,390
Fifth Corps Area	571	59	3,921	584	54	4,023
Sixth Corps Area	578	51	5,095	608	50	5,208
Seventh Corps Area	955	58	7,161	968	49	7,517
Eighth Corps Area	1,757	125	19,562	1,681	122	20,025
Ninth Corps Area[2]	1,134	116	12,037	1,078	125	12,190
Total in Continental United States	9,655	753	85,586	9,659	727	87,442
Hawaiian Department	798	53	13,408	808	49	13,437
Panama Canal Department[3]	471	41	9,206	448	37	9,113
Alaska	11	....	293	11	....	280
Puerto Rico	59	6	864	58	6	806
Philippine Department:						
Regular Army	536	58	4,193	570	48	4,144
Philippine Scouts[4]	59	....	6,383	62	....	6,306
China	46	2	733	50	2	670
Europe[5]	17	....	....	....	....	....
Miscellaneous[6]	669	....	7	617	....	1,625
Grand Total[7]	12,321	913	120,673	12,283	869	123,823

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[1] Excludes Puerto Rico.

[2] Excludes Alaska.

[3] Includes Panama Civil Government.

[4] Excludes officers of the Philippine Scouts attending special service schools and awaiting retirement in continental United States.

[5] Includes American Graves Registration Service and escorts of gold-star mothers and widows visiting American cemeteries in Europe.

[6] Includes military attachés, personnel on leave and en route to and from oversea garrisons.

[7] Includes personnel of the retired list on active duty.

ACCOMPLISHMENTS OF ARMY PERSONNEL

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

ARMY MANEUVERS

During early September field exercises were held in New Jersey to test the efficiency of the Army's network of higher command and staff and to train personnel in the processes of maintaining, maneuvering and fighting troops in campaign. The exercises were based upon a suppositious invasion of our mainland, launched by hostile forces along the New Jersey coast line, while the attention of our Army and Navy was engaged in a totally different direction.

As a preliminary to the defensive action initiated by the War Department, staffs and troop organizations carried out detailed mobilization tests at their home stations. Due to lack of funds, however, these units could not be concentrated for the field maneuver, so that the only elements actually participating were the commanders and staffs of the forces theoretically involved in the problem. These forces comprised the First and Second Armies with their subordinate Corps and Divisions, an Air Force, a Cavalry Corps, and necessary supporting troops. The Chief of Staff took the field as the Army Group Commander, with General Hearquarters established at Raritan Arsenal, New Jersey.

The maneuver itself therefore consisted in the operation, under assumed campaign conditions, of divisional and higher headquarters of all troops concentrated to oppose the invading force. Between Sept. 2 and Sept 8 organization commanders were continuously confronted with tactical problems calling for immediate decision and plans, and for close cooperation with other units.

The development of satisfactory solutions to these problems provided invaluable training for the Army. The maneuvers served to acquaint officers, in a practical way, with the essential features of the Army's system of higher tactical control, and to indicate those directions in which there now exist the greatest possibilities for increasing the efficiency of preparatory activity.

INFANTRY

Organization. — The present Infantry organization is essentially that which existed at the close of the World War. However, it is likely that reorganization will be undertaken in the near future because of recent extensive development in the field of military material. New transportation and new weapons have always vitally affected organization and they must be especially reckoned with now.

Transportation.—From the standpoint of transportation for troops and supplies, the motor-propelled vehicle seems destined to replace the army mule. While animal-drawn transportation will still be essential in certain contingencies, the army, keeping step with motor developments for peacetime pursuits, is adapting these developments to army transportation uses. Motorization within the Infantry has progressed to the point where, upon delivery of vehicles now contracted for, divisional headquarters and headquarters companies, regimental headquarters and field trains of infantry regiments will be motorized. In addition, several infantry regiments will have their machine gun companies, howitzer platoons and communication platoons motorized. Thus, without discarding all animal transportation prematurely, motor transportation will be given a thorough field test.

Mechanization.—In this category, which concerns the employment of the motor-propelled vehicle on the battlefield as a weapon, the Infantry's main weapon is the tank. At present there are being procured for the Infantry 18 medium tanks (convertible type) and 18 light tanks of the all-track type. This will equip two companies. Delivery of these tanks will make possible the development of tactics for fast tanks and will facilitate assembling of correct information on which to base future tank organization. The Infantry Mechanization Program, which it is hoped can be developed, calls for a regiment of medium tanks and a regiment and eight divisional companies of light tanks.

Weapons.—Among newly developed Infantry weapons which are being procured in some quantity are the 81 mm. Stoke-Brandt mortar, the .50 caliber machine gun, the light machine gun (at present the Browning Automatic with bipod) and the semiautomatic rifle. The mortar and the .50 caliber machine gun can be readily disassembled and carried by hand for considerable distance. The light machine gun and the semi-automatic rifle are habitually man-carried. Not only because of their effectiveness but also because of the ease with which they can be moved, these weapons will have an important influence in arriving at a new organization for the Infantry regiment.

CAVALRY

Modernization. — The modernization program of the Cavalry has been partially completed. All horsed regiments have been provided with six scout cars each and the mule-drawn escort wagons replaced by light motor trucks. The full allowance of one horse pack radio set has been provided and a certain proportion of the antitank guns. Of the two regiments to be mechanized, one now has most of its equipment on hand or in the process of manufacture.

Current Development.—In the field of experimentation and development the major features under consideration in 1934 were (1) revision of tables of organization, necessitated by the modernization program; (2) the preparation of a new cavalry field manual; (3) reduction in weight of pack loads which accompany troop units. This latter aim is sought because of improvement in horsemanship in the Army and the availabitity of a better class of remounts which has raised the marching rate of Cavalry to six miles per hour.

Maneuvers.—The maneuvers held at the Cavalry School in the spring of 1934 demonstrated the soundness of the materiel under experiment the preceding year. They also showed that, while mechanization and motorization greatly extend the scope of Cavalry action, mechanized units can not replace horsed units under all conditions but that the two can work very effectively in conjunction with one another.

FIELD ARTILLERY

Materiel and Equipment. — Based upon the results of test of a truck-drawn battery of 75 mm. guns by the Field Artillery Board, additional equipment was provided to extend this test of the use of motors as replacement for the horse to a battalion of three batteries at Fort Sill, Oklahoma.

Maneuvers.—A truck-drawn light battery from Fort Sill, Oklahoma, and a battalion of horse-drawn light artillery from Fort Riley, Kansas, participated in the maneuvers of horse and mechanized cavalry in the vicinity of Fort Riley in May.

COAST ARTILLERY

Organization.—The missions of the Coast Artillery Corps are: (1) the attack of enemy Naval vessels by means of artillery fire and submarine mines and, (2) the attack of enemy aircraft by means of fire from the ground. To accomplish these the Corps is organized into Harbor Defense, Tractor-drawn, Railway, and Anti-aircraft Artillery units.

In order to accomplish the peacetime training and maintenance duties in the most efficient manner with the present limited personnel, the bulk of the harbor defense personnel in the Continental United States is concentrated in six active harbor defenses, while the remaining 13 harbor defenses are kept in condition for service by small maintenance detachments.

Materiel.—Constant progress is being made in the development of new and improved Coast Artillery materiel. During the past year especial progress has been made in means for the detection of airplanes at night, in electrical data computing instruments and transmitting devices, and in improvement in the system for the operation of controlled submarine mines.

THE NATIONAL GUARD BUREAU

Organization.—The reciprocal relationship existing between the state and the Federal Government is administered through a bureau of the War Department called the National Guard Bureau, whose chief is a National Guard officer holding a commission as Major General in the National Guard of the United States, and 29 other officers including four detailed for three years from the National Guard.

For 1934 the authorized strength of the National Guard was fixed at 190,211 and actual strength as of June 30 was 184,791. The 840 headquarters and 3,187 units included 18 infantry divisions in various stages of completeness, 20 cavalry regiments (in 8 brigades, 4 unbrigaded regiments, and 4 miscellaneous units), 22 regiments and 3 battalions of coast artillery (9 regiments and 3 battalions harbor defense; 3 tractor-drawn; and 10 anti-aircraft), and other special units.

Training. — The legal minimum training requirements are 48 armory drill periods of at least 1½ hours each and 15 days' field training per year. The troops are paid by the Federal Government; for the period of field training, at the same rate as for like grades in the Regular Army, and for each army drill, at approximately 1/30 of the monthly pay of like grades in the Regular establishment. The average attendance of armory drills during the fiscal years 1933-34 was 160,393, all ranks, and at field training, 186,783. Training which is supervised by officers of the

Regular Army, is supplemented by attendance at service schools and by correspondence lessons. During the year ended June 30, 1934, applications to attend schools numbered 183 officers and 24 enlisted men, of whom 52 officers and 2 enlisted men actually attended. Extension courses were taken by 10,226 officers and 13,892 enlisted men. Twenty-six enlisted men qualified for admission to the United States Military Academy. In addition to Bureau service, a limited number of National Guard officers are detailed to duty with the War Department General Staff to assist in preparing policies and regulations affecting the National Guard.

Aviation.—There are 19 observation squadrons in the National Guard. They are equipped with Douglas O-38 observation planes with Pratt-Whitney Hornet engines. During the past year a marked improvement has been made in the carrying out of tactical missions and the use of radio.

Civil Contracts.—Over 13,000 officers and enlisted men were called out by the governors of 35 states to assist the civil authorities in providing relief in disasters, fighting fires, preserving order, and in a wide variety of similar duties. The usual length of such duty was less than one week, but in some cases state troops have been on duty continuously throughout the year.

THE CHEMICAL WARFARE SERVICE

Officers of this service are on duty in every Department, Corps Area, Division, and various service schools of the Army. Officers on procurement duty at important industrial centers assure cooperation with industry through the medium of technical advice and assistance. Inquiries were answered from all parts of the country, concerning the action and effects of chemical agents used as war gases, as well as other toxic materials.

SIGNAL CORPS

Supply Activities. — Four major procuring agencies and eight depots are operated by the Signal Corps for the procurement and storage and issue of Signal communication supplies and equipment. Value of supplies procured annually approximates $2,500,000; value of supplies issued from depot stock is approximately $1,750,000. In addition to radio repair sections at four Air Corps depots, repair shops are operated in seven of the eight Signal Corps depots at which $500,000 worth of equipment is repaired annually.

Photographic Service.—This service operates still photo laboratories at each Corps Area and Department headquarters for the routine photographic work required by the War Department; maintenance of files of historical still and motion pictures, and production and distribution of training films. Production of ten sound training films has been completed and four more are in various stages of completion.

Meteorological Service.—The Signal Corps operates 33 meteorological stations in the United States, two in Hawaii, two in Panama and one in the Philippines. These stations furnish the Air Corps with reports of weather conditions, both surface and aloft, along the airways; the Field Artillery with ballistic weather data for gunnery practice; the Ordnance with such surface and upper air data as are used in proving guns, and all branches of the Army with forecasts, current and climatological data. Progress was made in developing a recording instrument for wind data and an aneroid barometer.

Washington-Alaska Military Cable and Telegraph System.—Signal Corps radio stations at Candle, Circle, Eagle, Holy Cross, Hot Springs, Livengood, Ruby, St. Michael, Tanana, Teller, Fort Yukon, Wiseman and Tacotna were closed. A number of these were replaced with radio stations owned and operated by the communities concerned or by the Territory of Alaska. In all such cases, each of the new stations works into a key station of the Signal Corps. The majority of the new stations have been equipped with low-power radio-telephone equipment.

The Signal Corps radio stations in

Alaska which furnished valuable weather information contributed in no small measure to the success of the Army Air Corps Flight of ten bombers from Washington, D. C., to Fairbanks, Alaska, and return, during July, 1934.

During the fiscal year 1934, the System handled commercial messages totaling 7,945,385 words and 4,407,488 words of Government messages. Receipts from commercial traffic amounted to $248,088.49.

Pigeon Service. — Progress was made in breeding and training homing pigeons for both day and night flying. Lofts are now maintained at Forts Monmouth, Benning, Sam Houston, William McKinley, and Mills, at Bolling Field, France Field, Quarry Heights, and at Schofield Barracks.

Telephone Systems. — During the year, the Signal Corps maintained 171 Government-owned switchboards with 35,190 telephones connected thereto. Eighteen switchboards with 1,573 telephones were rented from commercial companies.

Army Amateur Radio System. — This system now comprises some 1,500 stations actively affiliated with the Signal Corps. Weekly operating drills were conducted and special tests were made with excellent results. In time of local emergency and disaster, parts of the system were mobilized quickly to handle emergency communications when commercial wire facilities were interrupted.

Army Radio Net.—This net handled a total of 33,857,075 original words during the last fiscal year, representing an increase of 28% over the previous year. This was largely due to activities of the Army Air Mail, the Civilian Conservation Corps and the new emergency agencies of the Government established in the summer and fall of 1933.

THE ORDNANCE DEPARTMENT

Functions.—The primary functions of this department are, (1) to design, develop, manufacture, or procure munitions for the use of our Army and, (2) to issue and service these munitions. Under munitions are included cannon, small arms, ammunition of all kinds, bombs, fire control instruments, tanks and other combat vehicles, and many other miscellaneous items needed for Army training and operations.

Organization.—The administrative and operating responsibilities of the Office, Chief of Ordnance are discharged through four management groups, organized along functional lines: (1) a general office for executive and administrative duties, (2) a technical staff to advise on questions of materiel, to conduct experimental investigations and proof tests, (3) a manufacturing service to design, develop, procure (by manufacture or otherwise) inspect, and accept all Ordnance materiel, and (4) a field service which stores, issues, inspects, repairs, alters, and maintains all Ordnance materiel in storage and in the hands of troops.

Materials and Processes. — There has been important and continued progress in the adaptation of new processes, improved raw materials and simplified procedure, the standardization of design and specifications, and the advancement of the Ordnance Department in its preparedness program. Each of the manufacturing arsenals and the Aberdeen Proving Ground conduct a number of research programs. These programs are coordinated to prevent duplication of effort and to insure effective dissemination of the results obtained. The improvement in quality and reduction in cost of the product and the simplification of the procurement problem in time of war which have resulted from this research work have amply justified its cost. The funds made available for the Ordnance Department have not only served the laudable purpose of relieving unemployment but also have brought the Government to a position of greater security against any possible foreign aggression.

THE QUARTERMASTER CORPS

In connection with the prosecution of the Army Housing and Technical Building Program, the Construction Division of the Quartermaster Corps has, in the past year, instituted and carried to within approximately 80% of completion the largest building program yet attempted by the War Department in time of peace. Under authority contained in the National Industrial Recovery Act, the Public Works Administrator allotted to the War Department approximately $54,700,000, for new construction at 32 Army posts and stations. Funds were allotted late in September, 1933, and plans and specifications were prepared, projects advertised and contracts involving the major portion of the allotted funds were entered into before the end of February, 1934. On Oct. 6 last, 98.9% of the funds allotted were obligated, the major part by contracts entered into and the balance by projects being executed by purchase and hire.

Horse Breeding. — During 1934 more than 20,000 mares were bred to 700 stallions. The produce resulting from this breeding will be in the neighborhood of 12,000 foals, all of which will be half-bred or better. Forty new stallions were acquired for stud duty and 69 stallions, no longer fit, were disposed of. On July 1, 750 stallions were available for stud duty.

Memorials.—There are 83 National Cemeteries in the United States, one in Mexico, one in Alaska, and 8 Permanent American Cemeteries in Europe (6 in France, 1 in England, and 1 in Belgium). In the National Cemeteries in the United States there were 4,164 interments during the year, bringing the grand total to 431,748. There were 5 interments in the Permanent American Cemeteries in Europe during the year, bringing the grand total to 30,885. These five bodies were those of men heretofore carried as missing or unlocated and were recovered and identified during the year. With Public Works and Civil Works Administration funds many needed improvements were made at all National Cemeteries, including improvements to roads and enclosures, construction of new lodges and repairs to existing lodges, landscaping and laying out additional burial sections, and provision of adequate drainage facilities. During the year 31,464 headstones were furnished to mark the graves of deceased soldiers, sailors and marines.

Real Estate. — The aggregate amount of real estate sold during the year was $118,290.52. There were 11 national military parks; 2 national parks; 10 battlefield sites; 10 national monuments; 4 miscellaneous memorials and 11 National cemeteries transferred to the Department of the Interior. There were also transferred 8 American cemeteries in Europe to the American Battle Monuments Commission. The rental from the leasing of properties, not for the time required for military purposes, approximated $269,827. The rentals of private property for the use of the War Department aggregated $207,925.83, and the Civilian Corps $102,995.56.

Army Transport Service.—During July, 1934, the U. S. Army Transport *Chateau Thierry* carried the First Class of West Point cadets from West Point, N. Y., to Savannah, Ga., and then sailed for Port au Prince, Haiti, where personnel of the Marine Corps were embarked and transported to the Army Base, Brooklyn, N. Y. In August, 1934, the U. S. Army transport *U. S. Grant* proceeded to Fort Monroe, Va., to embark the cadets transported the previous month by the transport *Chateau Thierry*, and returned same to West Point, N. Y.

In order to assist the Air Corps Flight from Washington, D. C., to Fairbanks, Alaska, the steamer *El Aquario* was outfitted at San Francisco, and took Air Corps personnel and supplies to Seward, Alaska. A new type of an all-welded motor life boat was designed and placed abroad the U. S. Army transport *Republic*. This type of life boat is unique in that the entire exterior of the boat was galvanized by the ''Schoop'' or spraying process.

During the year, the fifteenth Quartermaster Corps officer completed the prescribed course covering repairs to vessels at the Norfolk Navy Yard. This course has been the means of furnishing to the Army trained officers in the care, maintenance and upkeep of vessels under the jurisdiction of the Army.

Comparisons, Army Transport Cost with Commercial Value of Work Performed:

Passengers (entitled to transportation at Gov't. expense):		
Commercial Value	$2,437,309.61	
A. T. S. Cost	1,190,779.50	
Savings to Government		$1,246,530.11
Cargo, Mail, Remains, Animals:		
Commercial Value	$2,380,683.54	
A. T. S. Cost	1,162,539.68	
Savings to Government		1,218,143.86
Total Savings to Government		$2,464,673.97
Savings to Army Personnel who would have had to travel at their own expense, if they had traveled by commercial lines in order to avail themselves of authorized leaves of absence while at foreign stations:		
Commercial Value of Transportation		$ 492,929.59
Amount paid for Subsistence		83,528.11
Savings to Army Personnel		$ 409,401.48

Disposal of Waste Material.—The War Department received $528,110.99 from the sale of condemned property and waste material and $81,770.60 from the sale of garbage, manure, and dead animals. Salvage material valued at $320,933.63 was used within the Army and turned over to other Federal Departments. Salvaged property worth $2,759.34 sold for a nominal sum of charitable organizations.

Disposal of Surplus Property.—From the sale of clothing and supplies $687,495.12 was derived. In addition, supplies worth $141,668.26 were turned over to other branches of the Government.

ENGINEER CORPS

Mapping.—The 29th Engineers is the chief map-making organization of the Army. During the past year the balance of an area of about 1,500 square miles adjacent to the city of New York was completed. Maps were made of a military reservation in upper New York and of another in California. Work was commenced on mapping a considerable part of the rugged and difficult Olympic Peninsula in Washington. A reproduction plant is maintained in Washington for the printing of maps.

Strength.—The Corps strength at the end of the fiscal year was 602 officers and 4,311 enlisted men. Four officers of the Corps served the civil government of the District of Columbia; two were assigned to the American Battle Monuments Commission; and three were detailed to the Panama Canal Zone civil government, one serving as Governor of the Zone.

Mississippi River Flood Control.—Six and a half years after approval of the law providing for flood control of the Alluvial Valley of the Mississippi finds about 80% of the work completed with allotments totalling $257,000,000. Of the estimated 650,000,000 cubic yards of earth required to be moved, over 460,000,000 cubic yards have been placed in the levees. To date, including repairs and replacements, about 400,000 linear feet of revetments have been placed and 175,000 linear feet of dikes have been constructed. The Birds Point—New Madrid Floodway has been completed. The Bonnet Carre spillway structure is completed and the floodway is practically completed.

Study and Survey of Rivers.—The Engineer Corps is making an extensive inventory of the potential resources of our principal rivers. More than 180 streams have been reported on, and the work, when finished, will reveal the possibilities of our rivers that are now navigable or may be made navigable by improvement.

THE MEDICAL DEPARTMENT

The Medical Department cared for patients in hospitals during the year amounting to 2,363,385 hospital days. Slightly over 1,355,000 of these days were spent in hospital by members of the active Military personnel while the remainder were members of the C.C.C., Veterans' Administration beneficiaries, members of the National Guard, C.M.T.C. In addition to the care of this enormous number of patients, there was an average of 395 patients treated each day in quarters; there were also 1,290,141 out-patients treated with an average of 1.8 treatments per case. Almost 700,000 physical examinations were made and about 950,000 vaccinations of various kinds administered. The general admission rate for the year was 578 per 1,000. Venereal diseases caused an admission to sick report of 34.4 per 1,000, the lowest rate on record in the Army. There were 577 deaths among military personnel during the year, a death rate of slightly more than four per 1,000. Excluding 3 deaths among nurses, the male deaths were caused by injuries in 286 instances and by diseases in 288 instances. Automobile accidents head the list as the most important cause of deaths with suicide second.

The Civilian Conservation Corps not only has thrown an enormous load upon the Medical Department due to supplying medical care but has offered many problems in preventive medicine. As the men were scattered throughout the country in small camps, mostly in rural areas, the problem of typhoid prevention was a very important one. All enrollees were given the usual typhoid prophylaxis. During the year it is estimated that over 450,000 were thus vaccinated. There were only 54 cases of typhoid reported among this number with four deaths. Two of these cases reported at camp sick while a third became ill before vaccination was completed. In the Regular Army during the same period there were but four cases of typhoid in the United States. Due to the prevalence of tick-borne fevers in certain sections of the country about 20,000 men were given prophylactic vaccination against Rocky Mountain spotted fever. These men were in camps located in more or less endemic areas. Another 20,000 were vaccinated the second season as most of the men were new. Only two cases of the disease occurred, one each year and in neither case had the man been vaccinated. Unfortunately, due to scarcity of vaccine, all men exposed could not be protected, those in the worst areas having priority.

THE FINANCE DEPARTMENT

Functions. — This is the agency through which the War Department pays its personnel and bills, makes collections due, and audits property accounts. The Chief of Finance, as War Department Budget Officer, is charged with compiling and submitting to the Bureau of the Budget all estimates of funds for the several branches and services required for inclusion in the annual War Department appropriations made by Congress.

Total Amount Disbursed. — The total number of vouchers paid by the Finance Department in the fiscal year 1934, was 1,952,113, representing an aggregate disbursement of $639,906,524.60.

Commercial Invoices.—Every bill incurred by the War Department is met on a cash basis, thus effecting considerable savings. During the past fiscal year, 2,052,437 commercial invoices were handled. Most of these indicated a discount period through which means $949,487.73 was earned. Since July 1, 1919, the Finance Department has saved the Government $5,257,927.49 by taking advantage of discounts offered.

Property Accounting. — All items of property purchased for the military establishment from monies appropriated by Congress for the support of the Army as an agency of national defense are audited by the Finance Department. This includes all building materials, installations and machinery until actually merged into real estate in the form of buildings, docks, piers, and the like, and supplies purchased and issued to clothe, feed and equip troops for field and garrison service. In the hands of Army agencies at present, excluding the value of grounds and buildings, there is well over $2,000,000,000 worth of property. The accountability of this property is divided among some 3,300 accounts which are audited at least once annually.

Savings Accounts. — Since 1873. soldiers' savings have been authorized to be deposited with Army disbursing officers in sums not less than $5 to draw interest at 4 per centum per annum. Cases of enlisted men retiring with sums above $5,000 to their credit are not rare—the largest single soldier's deposit of record is $23,600. On June 30, 1934, there were 5,619 active soldier deposits and the amount deposited during the fiscal year totaled $649,616.31; on these deposits the Government paid $28,849.68 interest. From June 30, 1873 to June 30, 1934, the sum of $73,046,384.91 has been deposited through this Army channel and it has earned $3,798,460.15 in interest for the depositors.

Civilian Conservation Corps.—The Finance Department was assigned the duty of making payments for this Corps upon its establishment in April, 1933. The average number of members paid monthly since April, 1933, was 249,447; the average number of allottees paid monthly since April, 1933, was 232,315; the total amount paid allottees during the period April, 1933 to June 30, 1934, was $78,203,306.81. Nearly 3,000,000 Civilian Conservation Corps checks were drawn during this period. Total disbursements pertaining to the Civilian Conservation Corps for the fiscal year 1934, amounted to $304,798,074.17.

THE INSPECTOR GENERAL'S DEPARTMENT

On May 5, 1778, the Congress of the American Colonies in revolution against England, enacted a resolution authorizing the institution by General Washington ''of a well organized inspectorship'' for the Army. The Inspector General's Department immediately thereafter came into existence and what General Washington termed ''the extensive ill consequences arising from a want of uniformity'' in matters of supply, administration, and discipline slowly but surely disappeared. During the past year it made 78 special investigations into cases involving matters of a disciplinary or corrective nature; 341 inspections of posts, camps, stations, and allied activities involving supply and administrative problems, and 580 inspections of the money accounts of officers disbursing public funds,—in all three phases of its work remedying defects and irregularities, enhancing and discipline, and conserving money and property.

THE ADJUTANT GENERAL'S DEPARTMENT

Functions.—As administrative officer of the War Department, The Adjutant General handles a vast amount of correspondence. During the fiscal year, 1,988,431 pieces of mail were received and distributed to the various divisions of the office. The maximum for any one month was 183,297 pieces in June and the highest for a single day was 27,447 on June 21, 1934. There were 36,114 telephone inquiries received concerning individuals and 20,669 of a miscellaneous nature.

Library Service.—In libraries in continental United States and the overseas departments, 700,000 books, covering practically all subjects of general interest were available to Army personnel. In these libraries there was, during the year, a recorded circulation of 1,526,180 books. There was expended $3,903 for magazines to augment standard library material.

Military Records. — During the year, approximately 197,000 additional documents relating to discontinued commands were received so that at the close of the year the organization record files contained 114,473,000 documents. Work was continued on mounting and preserving important World War maps and 820 additional official maps were received.

Military Decorations.—There were 27 awards of the distinguished-service cross (2 with oak leaf clusters); 3 distinguished-service medals; 2,189 Silver Star citations (318 with oak leaf clusters); 7,126 Purple Hearts (655 with oak leaf clusters); 31 soldiers's medals; 1 distinguished flying cross (with oak leaf cluster), and 277 French fourrageres during the year.

THE BUREAU OF INSULAR AFFAIRS

To the Bureau of Insular Affairs are assigned all matters pertaining to civil government in those island possessions of the United States subject to the jurisdiction of the War Department. This jurisdiction now embraces the Philippine Islands. The administration of civil affairs of Puerto Rico was assigned to the Bureau in 1909 and continued therein until July 29, 1934, when it was transferred to the newly created Division of Territories and Island Possessions of the Department of the Interior. The detailed activities of the Bureau are not prescribed by Congress, but are subject to the control of the Secretary of War. The Bureau is charged with the presentation to the Secretary of War of such matters as may require his action or should be brought to his attention and with the formulation and communication to the Insular Government of the policies and action of the Secretary of War in matters within his supervisory jurisdiction. This requires studies and recommendations on varied questions such as proposed legislation, financial matters, tariffs, commercial and industrial matters, and immigration. It assists in the preparation, for submission to Congress, of such legislation as receives the approval of the Secretary of War, and examines pending legislation in its relation to the interests of the people of the islands concerned.

As regards the Philippine government, the Bureau's functions are in many respects analogous to those of a Colonial Office for Civil Affairs. It assists in the presentation before the courts of the United States of cases in which the insular authorities are concerned and acts as an agent of the Philippine government in connection with a number of varied services, such as the administration of insular government funds deposited in the United States, matters relating to the currency, the servicing of the insular public debt, and the purchase of supplies for the Insular Government. Supervision of Philippine affairs has been exercised under the War Department continuously for 36 years, beginning with the establishment of United States Military Government in the Islands on Aug. 14, 1898.

The Bureau of Insular affairs also has immediate supervision and control of the Dominican Customs Receivership for the collection of customs revenues and payment of the interest and principal of the adjusted bonded indebtedness of the Dominican Republic. This includes annually an examination and verification of the accounts of the General Receiver by an officer of the Bureau.

THE JUDGE ADVOCATE GENERAL'S DEPARTMENT

Functions.—The functions of The Judge Advocate General's Department are to operate the system of military justice and to act as legal adviser to the War Department and the entire military establishment, both in Washington and in the field.

Courts-martial. — During the past year, 1590 persons were tried by general court-martial, of which number, 1484 were convicted and 106 acquitted.

Contracts and Reservations. — In the handling of questions relative to the making or operation of contracts in which the War Department or any of its agencies is interested, during the past year, 955 formal opinions were prepared.

Military Affairs Section. — Rendered 672 formal written opinions in cases affecting Army organization, administration and personnel.

Board of Review.—Examined 452 records of general courts-martial.

Military Justice Section. — Examined records of 1401 courts-martial cases in addition to 407 matters of general correspondence.

Insular Affairs Section. — During the fiscal year, 105 formal opinions were given on insular affairs and, acting as attorneys for the governments of the Philippine Islands, Puerto Rico, and the Canal Zone, officers of this section disposed of five cases before the United States Supreme Court, four before the United States First Circuit Court of Appeals, and have pending six cases in the Court of Appeals.

Patent Section.—In collaboration

with the Department of Justice, participated in the defense of 43 patent suits, involving claims of approximately 250 million dollars.

Claims and Bonds Section. — The work of this section is covered in the following statistical resumé:

Normal papers handled	914
Bonds approved	7,866
Related correspondence	1,828
LITIGATION DISPOSED OF:	
In Court of Claims:	
Judgments in favor of U. S.....27—totaling	$2,001,902.54
Judgments against U. S....19—totaling	154,400.44
In Court of Appeals:	
Mandamus denied	1

CORPS OF CHAPLAINS

During the year, 17,444 services, attended by 1,453,608 persons; 596 marriage ceremonies; 1,398 baptisms; and 1,812 funerals were conducted by Regular Army Chaplains. Civilian ministers held 3,301 services, attended by 257,224 persons. Reserve Chaplains on active duty in the Civilian Conservation Corps camps held 23,247 services, attended by 1,696,568 persons. Volunteer civilian clergymen and rabbis held 42,286 services at which 2,044,202 attended.

As a result of competitive examination, two out of 23 men examined were commissioned as Chaplains. Four Chaplains pursued postgraduate courses made possible by scholarships awarded by the University of Chicago and the Catholic University of America. In the Army Extension Courses, 212 Chaplains were enrolled, completing 575 subcourses.

CIVILIAN PERSONNEL DIVISION

This officer exercises control in matters pertaining to civilian employees in the War Department and with the Army. This involved, during the past year, decisions in matters of civil service law and rules, classification allocations and schedules, retirement determinations, and compensation changes for a force of employees, departmental and field, approximating 61,000 in number.

THE PANAMA CANAL

The Panama Canal, while not a part of the War Department, is under the personal supervision of the Secretary of War. Lieutenant Colonial Julian L. Schley, Corps of Engineers, is the present Governor of the Panama Canal. The total number of transits through the canal during the fiscal year 1934 was 5,533 with a net tonnage of 28,566,595 tons. Tolls collected amounted to $24,063,789.45. The construction of the Madden Dam across the upper Chagres River is nearing completion. This dam will supplement the water supply in Gatun Lake for lockages, control floods in the Chagres River, and provide additional hydro-electric power.

ARMY AERONAUTICS

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

AIR CORPS STRENGTH

On June 30, 1934, there were 1,299 commissioned officers in the Air Corps, Regular Army. To this number may be added 58 Second Lieutenants, detailed as flying students. The Corps is still 351 officers short of authorized strength and, during the past two fiscal years, the average annual gain has been only a fraction in excess of 22 officers. Under existing law, the only method of augmenting the commissioned strength of the Air Corps is through detail thereto of graduates of the United States Military Academy for flying training and commissioning those successfully completing the one year's flying course. The enlisted strength of the Corps was 14,450 on June 30, 1934, including 318 Flying Cadets.

The 29th, 58th and 74th Pursuit Squadrons were units newly organized during the year as were ten new Air

Corps detachments, established for service in the Corps Areas, at the Military Academy, and at Fort Lewis, Wash. On Sept. 30, 1933, the First Bombardment Brigade Headquarters and the 28th Communications Section at Langley Field, Va., were demobilized and their personnel transferred to the Headquarters, G.H.Q. Air Force organized at that field the following day and transferred to Bolling Field, District of Columbia, on Feb. 28, 1934.

AIRPLANES

On June 30, 1934, there were 1,548 airplanes on hand for use of the Regular Army, Reserve Corps, and National Guard. Of these, but 1338 were available for full use, comprising combat, cargo, photographic, basic and primary training types. Of the total on hand, 958 were combat types, that is, Pursuit, Attack, Bombardment, and Observation. During the year, contracts were placed for 108 airplanes, the two principal ones calling for 22 Observation and 81 Bombardment types.

AIRCRAFT DEVELOPMENT

Several outstanding types of military aircraft were produced during the year, these being the P-29 (Boeing) single-place Pursuit, equipped with a supercharged R-1340 Pratt and Whitney engine, and the P-30 (Consolidated) two-place Pursuit, equipped with a supercharged V-1570 Curtiss-Wright engine. Two bombardment types, the B-10 and B-12, were placed in service. Development of the attack type of airplane centered around a single-engine, low wing monoplane, for which a satisfactory model was produced.

In aerodynamics, improved methods were evolved for making controllable propeller computations and performance calculations of airplanes with supercharged engines. A study of lift-increasing devices indicated that a substantial decrease in landing distance could be made through the use of flaps and marked advance was also made in the design of cantilever landing gear. Efforts were continued towards eliminating propeller vibration and propeller cone troubles. The welded hollow steel propeller blade was perfected and development of the solid steel blade was initiated. Experimentation with high-strength alloys of aluminum and magnesium brought forth new and stronger blades which are awaiting test. Spot welding as a means of fabricating aircraft structures is undergoing trial and special equipment was installed at Wright Field, Dayton, O., for welding aluminum alloys and stainless steel by both spot and seam processes. Specifications were prepared to enable contractors to install this equipment and conduct experimental manufacture of low-stressed parts.

CONSTRUCTION

Under Public Works funds, construction work was initiated at Barksdale Field, La.; Hamilton Field, Calif.; Langley Field, Va.; Maxwell Field, Ala.; Marshall Field, Kan.; Middletown Air Depot, Pa.; Mitchell Field, N. Y.; Patterson Field, O.; Phillips Field, Md.; Pope Field, N. C.; Post Field, Okla.; Randolph Field, Tex.; Selfridge Field, Mich.; and Wright Field, Dayton, O. This embodied such projects as barracks, quarters, hangars, warehouses, gasoline storage systems, roads and walks, drainage systems, heating plants, and improvement of landing fields. In most cases, these projects have been more than 50% completed. All construction work at Hamilton Field, Calif., was completed as were officers' and non-commissioned officers' quarters at Rockwell Field, Calif. Construction projects, under other appropriations, were accomplished at Bolling Field, D. C.; Duncan Field, Tex.; Lawson Field, Ga.; March Field, Calif.; Maxwell Field, Ala.; Pope Field, N. C.; Selfridge Field, Mich.; and Tucson, Ariz.

FLYING AND ACCIDENT STATISTICS

Last year 432,966 hours were flown by Air Corps Regular Army and Reserve while this year 382,099 hours were spent in the air, a decrease of 50,867 hours. Compared with the preceding fiscal year, accidents decreased from 442 to 418 but the number of fatal accidents this year increased from 28 to 35, the number of fatalities from 46 to 54, and the number injured from 82 to 84. For each accident this year a total of 914 hours were flown as against 979 hours in 1933.

MANEUVERS

Owing to budgetary limitations, no combined Air Corps maneuvers were held. Minor maneuvers were participated in at Fort Humphreys, Va.; at Fort Sill, Okla.; and at Fort Riley, Kan. Army pilots from Langley Field, Va., flying in 11 Bombardment, 20 Pursuit and 3 Transport planes were in attendance at the All-American Air Races held at Miami, Fla., Jan. 11-13, 1934. At various times, the Air Corps undertook special flights for scientists of the Massachusetts Institute of Technology and the California Institute of Technology to aid in the study of meteorology, cosmic rays, and the development of new systems for the future study of meteorology.

COMMUNICATIONS

Increased employment of radio communication in conjunction with air corps operations was occasioned by new and improved equipment, consisting of new frequency meters, radio equipment test sets, radio oscillators, airplane microphones, and the standardization of long range universal frequency transmitters. Improved aircraft radio reception was accomplished through the localizing and neutralizing of radio interference and the use of a two-wire ungrounded system.

EQUIPMENT

The air corps system of instrument (fog) landing was successfully applied to high speed tactical planes and, in service tests, over 800 instrument landings were made at Wright Field, providing instruction in fog-landing procedure to 26 pilots from various stations. Development of navigational aids to flying resulted in procurement of improved calculating machines, a small experimental pendulous sextant, and a new drift meter. Instrument development has produced improved types of gyro-driven instruments capable of reliable operation in cold temperatures, altimeters, automatic pilots, de-icers, electric fuel gauges, and a reserve-and-main tank fuel switch-over signal device which prevents vapor lock in fuel lines. New night-lighting equipment was procured for one field and lighting at seven other fields was revised. Two day-and-night wind indicators were installed for testing. The development of a portable liquid-oxygen plant by the air corps and a portable cooking outfit by the quartermaster corps will provide two new pieces of field equipment.

MATERIAL

Synthetic rubber was developed and adopted for several articles of standard equipment, such as refueling hose, fuel connections in gasoline lines, balloon valve seats, and degregator gaskets. Streamline casings for landing wheels were made standard for all new equipment. Lubricating oils having a flat viscosity curve and low pour point were developed for service test as an aid to starting engines at low temperatures without excessive consumption. With respect to engines, efforts were devoted to refinements as well as to accessories so that new models of older type engines with increased power outputs and with supercharging to higher altitudes were placed in service. In connection with supercharger development, a new and superior alloy was developed for turbine buckets.

MILITARY EDUCATION

By Robert S. Thomas

Chief Clerk, Historical Section, Army War College

CAVALRY

Functions. — The Cavalry School, Fort Riley, Kan., trains officers and enlisted men in cavalry tactics and technique and qualifies them as instructors. Instruction in leadership of small units is stressed because of the independence of action of cavalry units.

Courses. — During 1933-34, the courses conducted and numbers graduated for each course were: For Regular Army officers—Troop Officers', 20; Advanced Class, 9; Advanced Equitation, 7. For National Guard and Organized Reserve Officers—Troop Officers', 8. For Enlisted Men — Noncommissioned Officers', Regular Army, 17; Noncommissioned Officers' Special Advanced Equitation, 10; Horseshoers', 27; Saddlers', 13.

ARTILLERY

The Field Artillery School, Fort Sill, Okla., develops Field Artillery technique and tactics and disseminates that knowledge to all Army components. During 1933-34, the courses conducted and numbers for each course were: For Officers: Advanced, 12; Battery Officers', 43; Advanced Course in Horsemanship, 4; Advanced Course in Motors, 4; National Guard and Reserve Battery Officers' (Fall), 21. For Enlisted Specialists: Horseshoers (Fall), 13; Motor Mechanics (Fall), 22; Saddlers' (Fall), 6; Horseshoers' (Spring), 2; Battery Mechanics' (Spring), 7; Communication (Spring), 26; Special Shop Practice (Spring), 6; Motor Mechanics' (Spring), 23.

The Coast Artillery School, Fort Monroe, Va., conducted the following courses during 1933-34, with graduates for each as shown: Officers' Division: Advanced, 13; Battery Officers', 21; Advanced Technical, 2; Battery Officers', National Guard and Reserve, 12. Enlisted Division: Electrical (Sec. A), 12; Electrical (Sec. B), 4; Master Gunners', 6; Radio, 4; Clerical (First Class), 15; Clerical (Second Class), 19; Special Radio Operators', 4; Refresher, Master Gunner, 1. In addition, Coast Artillery officers of the Regular Army graduated from other service schools and civilian educational institutions as follows: Army Industrial College, 2; Army War College, 7; Command and General Staff School, 12; Naval War College, 2; École de Guerre (France), 1; Quartermaster Motor Transport 1.

ENGINEER CORPS

The Engineer School, Fort Humphreys, Va., trains engineer officers in the technique and tactics of the engineer arm. An extensive library is maintained, the main portion of which is located at the Army War College in Washington, with branches at Fort Humphreys and in the Office, Chief of Engineers. During 1933-34, the courses conducted and numbers graduated from each course were: Company Officers', 17; Enlisted Specialists', 39. Engineer Corps officers attended civil educational institutions as follows: Cornell University, 3; Massachusetts Institute of Technology, 4; State University of Iowa, 4; Princeton University, 4; University of California, 1; Michigan College of Mining and Technology, 1. Four officers were in attendance at Oxford University (Rhodes Scholarships); one made studies of European Hydraulic Research methods under a John R. Freeman Traveling Scholarship Award by the American Society of Civil Engineers.

SIGNAL CORPS

The Signal School, Fort Monmouth, N. J., trains signal communication specialists for all arms and services. Officers are trained in the theory and operation of modern electrical communication equipment and in the tactical employment of all Signal Corps agencies. Enlisted specialists' courses are conducted along vocational training lines. The following were the courses, with graduates for each, that were given in 1933-34: Company Officers', 7; Communication Officers (officers of other arms), 11. For Signal Corps Enlisted Men; Meteorological, 4; Telephone Electricians', 29; Radio Electricians', 20. For enlisted men of other arms: Telephone Electricians', 24; Radio Electricians', 55.

FINANCE AND ACCOUNTING

The Finance School, Washington, D. C., is divided into two departments, (a) Department of Finance and Accounting, and (b) Department of Property Accounting and Property Auditing. Courses are conducted for officers and enlisted men and instruction personnel at present consists of one officer, two warrant officers, and nine enlisted men. Thirty-seven students were graduated last year making a total of 828 officers, warrant officers, and enlisted men who have completed the course since 1920. In addition to resident courses, the school also conducts special courses by correspondence, covering both Finance and Accounting, and Property Auditing.

INFANTRY

The Infantry School, Fort Benning, Ga., educates and trains officers and enlisted men in the tactics and technique of the Infantry and imparts a working knowledge of the other arms of the service with which Infantry is associated. Since its establishment fifteen years ago, more than 75 per cent of all infantry officers have completed one or more courses at this institution. During this period, temporary war-time construction has been razed and replaced by permanent buildings. During 1933-34, the courses conducted and numbers graduated for each course were: Advanced, 27; Company Officers', 86; Tank, 20. The Infantry School staff and faculty consist of 72 Infantry Officers, assisted by one officer from each of the following services—Field Artillery, Cavalry, Chemical Warfare Service, Veterinary Corps, Medical Department, Engineer Corps, Air Corps. Sixty-seven enlisted men acted as assistant instructors in the past school year.

MEDICAL DEPARTMENT

Because of additional duty in connection with the Civilian Conservation Corps, training of commissioned and enlisted personnel of this Department was curtailed during the past year. At the Medical Field Service School, Carlisle Barracks, Pa., the following were the courses given and numbers graduated from each: Basic Course for Regular Army Officers, 58; R. O. T. C. Camp, 137; Extension, 45. At the Army Medical Center courses and graduates were: Post Graduate for officers of the Medical Department, 10; Enlisted Specialists', 42. Army Dental School, Post Graduate, 5; Enlisted Specialists', 16. Army Veterinary School, Post Graduate, 4; Enlisted Specialists', 8. The School of Aviation Medicine at Randolph Field, Texas, was reopened in January. Medical personnel on duty in the various Civilian Conservation Corps camps received valuable field training and practical experience. The places of Regular Army personnel on this type of duty have now been largely taken by reserve officers, freeing regular personnel to resume normal courses of instruction at the special service schools. Extension courses in the various Corps Areas showed a marked increase in the number enrolled, the total reaching 6,939.

ORDNANCE DEPARTMENT

The Ordnance School, gives basic training in the main functions of the Ordnance Department, namely, ordnance engineering procurement of ordnance in peace and war, and supply of ordnance in peace and war. A two years' course is conducted at the Massachusetts Institute of Technology, Watertown Arsenal, Mass., at Picatinny Arsenal, Dover, N. J., and at Aberdeen Proving Ground, Md. The class also visits other ordnance arsenals and industrial plants for instruction. In 1934, ten students graduated.

The Ordnance Field Service School, Raritan Arsenal, N. J., trains enlisted men for supply and maintenance of ordnance equipment. In 1934, there were 41 graduated from the Noncommissioned Officers' Course, and 29 from the Enlisted Specialists' Course.

Civilian Educational Institutions.—Two officers of the Ordnance Department graduated from the Graduate School of Business Administration, Harvard University, and one from the special course in Ordnance Engineering at Stanford University.

CHEMICAL WARFARE SERVICE

The Chemical Warfare School, Edgewood Arsenal, Md., offers courses designed to keep abreast of new dedevelopments in chemistry and military science. Since its establishment in 1921, there have been graduated 1,573 officers and 343 enlisted men—and of this number, 592 officers were from the Navy, 64 from the Marine Corps, in addition to 139 Navy enlisted and 32 Marine Corps enlisted. During 1933-34, the courses conducted and numbers graduated for each course were: Noncommissioned Officers', 18; Line and Staff Officers', 17; Navy Postgraduate, 7; Navy Line Officers', 20; Field Officers', 56; Navy Constructors', 13.

QUARTERMASTER CORPS

Schools for Bakers and Cooks.—Approximately 100 officers and 1200 enlisted men from all arms and services completed the courses in the twelve schools for bakers and cooks during the past year.

Quartermaster Corps School, Philadelphia.—Twenty-three officers graduated from the Officers' Course and 36 noncommissioned officers and enlisted men were graduated from the Warrant Officers' and Enlisted Men's Class.

Quartermaster Subsistence School, Chicago.—Eleven officers were graduated from this school (7 Q. M. C. officers, 3 officers of the Navy, and 1 from the Marine Corps).

AVIATION

Scope.—The Air Corps trains its own personnel in the science and art of military aviation and receives also, as students, officers and enlisted men of other branches, as well as military men of friendly foreign countries. Owing to decreased funds, it has become necessary to reduce the size of classes gradually with a view to limiting flying cadet graduates to 150 yearly. Instruction is divided among the following schools:

Technical School, Chanute Field, Montgomery, Ala., trains in the tactical employment of the Air Corps and in its cooperative use with ground forces—38 Air Corps officers, 2 officers from other Army branches, and 3 Marine Corps officers were graduated.

Engineering School, Wright Field, Dayton, O., trains officers in military aeronautical engineering—11 officers were graduated.

Flying School (Primary), Randolph Field, San Antonio, Tex., offers an 8 months' course.

Flying School (Advanced), Kelly Field, San Antonio, Tex., offers a 4 months' course—51 Regular Army officers, 164 Flying Cadets, and one foreign student graduated from the Advanced School.

Technical School, Chanute Field, Rantoul, Ill., presents the theory and practice concerning the mechanical services and trades necessary in maintaining military aviation — 30 Air Corps Regular Army officers, 535 Air Corps enlisted men and 4 National Guard enlisted men were graduated.

Avigation Training. — Avigation training units were organized at Rockwell and Langley Fields to train Air Corps officers in avigation and frontier defense methods. The first class started training on Oct. 25, 1933, 38 officers receiving this instruction. The second class began training at these two fields, Jan. 8, 1934 and had completed half of the course when training was interrupted because the Air Corps took over the operation of the air mail. Forty-one officers received training in this class, and practically all Air Corps posts in continental United States were represented in the personnel of these training units.

GENERAL SERVICE SCHOOLS

The Command and General Staff School, Fort Leavenworth, Kan., graduating 115 student officers in

1934, conducts a 2-year course, thoroughly grounding selected officers in the principles of the command, staff, tactics, and logistics of large tactical units.

The Army War College, Washington, D. C., extends instruction received at Leavenworth to the subjects of mobilization, supply, and military operations on a large scale. There were graduated in 1934, a total of 84 officers; 76 from the Army, 6 from the Navy, and 2 from the Marine Corps.

The Army Industrial College, Washington, D. C., trains Army officers for duties pertaining to the supervision and procurement of military supplies and of assurance of adequate provision for industrial mobilization in a national emergency. This work is confined to instruction in matters of general policy and the broader aspects of procurement activity. In the 1933-34 course, 57 officers were graduated—this included 44 Army, 11 Navy, and 2 Marine Corps. Since its establishment, Feb. 24, 1924, this school has graduated 471 officers.

RESERVE OFFICERS' TRAINING CORPS

Enrollment.—A decrease has been noted in the number of students enrolled in both the senior and the junior units of the Reserve Officers' Training Corps, although the quotas for the advanced course were filled and many eligibles in excess of these quotas have pursued the advance course at their own expense. At the close of the school year, 1934, there were 104,147 students enrolled in the Reserve Officers' Training Corps. These were divided among 320 units scattered throughout the states, the District of Columbia, Puerto Rico, and Hawaii. There were 217 senior units with an enrollment of 65,419, and 103 junior units with an enrollment of 38,728.

There were in attendance at 90 summer training camps 447 basic course students and 6,786 advanced course students.

At the close of the school year, 1933-34, 50 preparatory schools, including high schools, were receiving government aid. Enrollment in the second year advanced course totaled 6,495 and 5,640 commissions as lieutenants in the Officers' Reserve Corps were offered to graduates. In addition, 850 certificates were granted to those eligible for appointment but who had not yet reached the age of 21 or who did not desire appointment at the time.

CITIZENS' MILITARY TRAINING CAMPS

Of the 44,751 applications received, 16,481 applicants were ordered to camp, 15,349 reported, 14,853 were enrolled, and 14,243 completed the training. Of this latter number, 1,910 were graduated from the blue course and, of these, 61 were appointed second lieutenants in the Reserve Corps.

ADMINISTRATION OF VETERANS' AFFAIRS

By Frank T. Hines

Brigadier General, U.S.A.; Administrator, Veterans' Administration

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ADMINISTRATIVE ORGANIZATION

Establishment.—The 71st Congress approved, under date of July 3, 1930, the consolidation and coordination of all governmental agencies affecting veterans into an establishment to be known as the Veterans' Administration. However, it was not until July 1, 1931, that a new plan of organization was adopted which redistributed the several functional activities of the three former agencies, namely: the United States Veterans' Bureau, the National Home for Disabled Volunteer Soldiers, and the Bureau of Pensions, to the end that related activities were set up under a common jurisdiction.

Personnel.—Administrator, Frank T. Hines; Executive Assistant to the Administrator, Adelbert D. Hiller; Assistant Administrators, Harold W. Breining, Omer W. Clark, George E. Ijams; Solicitor, James T. Brady.

Major Offices.—As of June 30, 1934, the organization of the Veterans' Administration was subdivided into five major units: office of the administrator; office of the assistant administrator in charge of medical and domiciliary care, construction and supplies; office of the assistant administrator in charge of pensions and compensation; office of the assistant administrator in charge of finance and insurance; and office of the solicitor.

Field Stations.—The Veterans' Administration maintains regional office facilities at 53 field stations for the preparation and adjudication of claims for all forms of pensions provided for veterans of the World War; physical examination of veterans of all wars applying for benefits; provision of medical, surgical and dental treatment, including hospitalization and domiciliary care; certification as to legality of appointment and fitness of fiduciaries, as well as other matters affecting beneficiaries under legal disabilities, and the handling of activities incident to loans made to veterans secured by their adjusted service certificates. These officers also assist in the preparation of claims for pensions of wars other than the World War.

COMPENSATION AND PENSIONS

Disability Compensation (War Time).—Public Number 2, 73d Congress, fixed the period of service for which War Time Disability Compensation could be awarded as April 6, 1917 to Nov. 11, 1918. Prior to the enactment of the above amendatory legislation, disability compensation was awarded for disabilities incurred in, resulting from, or aggravated by service during the period April 6, 1917, to July 2, 1921. As of June 30, 1934, there were 332,216 veterans receiving compensation for disabilities incurred in, resulting from, or aggravated by service in the armed forces of the United States during the period April 6, 1917 to Nov. 11, 1918. An analysis of the major disabilities for which veterans were receiving War Time Disability Compensation as of June 30, 1934, shows the following distribution:

Neuropsychiatric diseases	59,795
Tubercular ailments	57,270
General medical and surgical conditions	215,151

The following distribution shows the increase in active awards subdivided by type of disability, during the period June 30, 1923 to June 30, 1934:

Neuropsychiatric diseases	31,539
Tubercular ailments	15,719
General medical and surgical conditions	101,846

The largest numerical increase during the above period is shown for veterans suffering from general medical and surgical conditions. However, the largest per cent of increase is shown for the neuropsychiatric diseases.

The following distribution shows the per cent of increase distributed by type of disability during the past eleven years:

Type of Disability	Per Cent of Increase
Neuropsychiatric diseases	112
Tubercular ailments	38
General medical and surgical conditions	90

Death Compensation.—On June 30, 1934, compensation was being paid to the widows, children and dependent parents of 99,229 veterans of the World War who died in service or as a result of diseases or injuries incurred either directly or presumptively in service during the above war, as compared with 98,628 at the close of the fiscal year 1933. This compensation is being paid to 26,090 widows, 39,314 children and 85,477 parents. Death claims have been paid to date to the beneficiaries of 130,867 deceased veterans. An analysis of the principal causes of death of veterans who died as a result of service, and whose dependents are now receiving benefits, discloses that 30% died from tuberculosis, 28% from injuries, principally wounds in action, and 25%

from diseases of the respiratory system. A study of the awards for this benefit indicates that 43% of the deaths on account of which payments were being made on June 30, 1934, occurred prior to July 2, 1921, the official date of the ending of the World War.

Non-service Connected Pensions.—This form of benefit is provided for veterans of the World War who are suffering from a permanent and total disability which is not connected with service. Prior to the enactment of Public Number 2, 73d Congress, this form of benefit was designated as Disability Allowance and was not limited to those veterans who were permanently and totally disabled, but was applicable to all veterans who were suffering from a permanent disability rated 25% or more. As of June 30, 1934, there were 29,903 veterans receiving benefits for non-service connected disabilities rated permanent and total.

War of 1812.—Although over 119 years have elapsed since the close of the War of 1812, there were on June 30, 1934, seven persons in receipt of pensions on account of services rendered by soldiers of this war. These are five widows, one remarried widow, and one daughter. The total annual disbursements for the pensioners of the War of 1812 approximated $3,223.00 during the fiscal year ending June 30, 1934.

Mexican War.—As of June 30, 1934, there were 351 widows of Mexican War veterans on the pension rolls, and the payments to them during the fiscal year 1934 approximated $198,558.

Civil War.—Out of a total of 2,213,365 who served in this war, which terminated 69 years ago, pensions were being paid to 18,455 veterans on June 30, 1934. This represents a reduction of 5,422 in the number carried on the rolls as of June 30, 1933. On June 30, 1934, pensions were being paid to the dependents of 112,577 deceased veterans of the Civil War, this number representing a decrease since June 30, 1933 of 13,061. The approximate disbursement for pensions incident to the Civil War during the fiscal year 1934 was as follows: veterans, $20,051,397; dependents of deceased veterans, $49,763,326.

Indian Wars.—On account of Indian War service, 4,370 veterans and the dependents of 4,606 deceased veterans were in receipt of pensions as of June 30, 1934. The approximate disbursement for pensions incident to the above war during the fiscal period ending June 30, 1934 was: veterans, $2,178,191; dependents of deceased veterans, $1,537,856.

Spanish American War.—On June 30, 1934, pensions were being paid to 165,231 veterans and the dependents of 35,022 deceased veterans of the Spanish American War, Philippine Insurrection, Moro expedition and Boxer Rebellion. The approximate disbursement incident to the above military service during the fiscal period ending June 30, 1934 was: veterans, $47,933,272; dependents, $7,680,840.

EMERGENCY OFFICERS' RETIREMENT PAY

On May 24, 1928, an act was approved providing for the retirement of emergency officers of the Army, Navy and Marine Corps who incurred a disability in line of duty during the World War. Public Number 2, 73d Congress, approved March 20, 1933, limited entitlement of this benefit to officers whose disabilities directly resulted from the performance of military or naval duty. The application of this so-called causative factor reduced the number of officers entitled to retirement pay from 6,304 to 1,595 as of June 30, 1934. The number entitled to retirement pay had been further reduced by death to 1,583 as of the above date.

PEACE TIME SERVICE

As of June 30, 1934, there were 29,484 soldiers and the dependents of 6,009 deceased soldiers receiving benefits for service-connected disabilities incurred in, aggravated by or resulting from service in the armed forces of the United States during peace time. Included in the above number are 10,543 living veterans and the dependents of 285 deceased veterans who, prior to the enactment of Public Number 2, 73d Congress, were carried under the caption of "Veterans of the World War". The approximate disbursements for the above class of beneficiaries approximated $6,223,411 and $1,609,189 for soldiers and dependents of deceased soldiers, respectively, for the fiscal year ended June 30, 1934.

ADJUSTED COMPENSATION

Benefit Claims.—The claims filed for benefits under the World War Adjusted Compensation Act to June 30, 1934, totaled 4,044,830, of which 4,004,586 having a value of $3,720,628,525 had been approved. Of the number approved 3,719,568 represented adjusted service certificates issued to veterans, valued at $3,673,610,059; 155,536 were cash payments to veterans whose adjusted service credit did not exceed $50, amounting to $5,245,237; 120,026 claims on which quarterly payments were made to the dependents of veterans whose adjusted service credit was $50 or more, aggregating $41,516,160, and 9,456 cash payments to dependents of veterans whose adjusted service credit was less than $50, amounting to $257,069. In addition, the sum of $3,181,080 has been paid on claims for the $60 bonus to the dependents of veterans who died in service and therefore did not receive this benefit upon the termination of said service.

Death claims with a value of $178,092,200 have been awarded to the beneficiaries of 178,568 deceased veterans who had received adjusted service certificates, leaving 3,541,000 certificates in force with a maturity value of $3,495,517,859 and a present loan value approximating $1,750,000,000 as of June 30, 1934.

Loans.—A total of 2,884,504 certificates have been pledged and are held by the Veterans' Administration for loans and interest aggregating $1,614,220,289. In addition, it is estimated that loans made by banks with a value of $60,000,000 are outstanding.

INSURANCE

Renewal Plan.—Under the provisions of the War Risk Insurance Act every person in the active military and naval service was given the privilege of obtaining from the United States insurance payable in the event of death or total permanent disability in amounts up to $10,000. This insurance was issued on the yearly renewable term plan for temporary emergency, on account of the low premium rate for that class of insurance. No additional charge was included in the premiums for this insurance on account of the extra hazards of war, disability benefits, or to cover the cost of administration, all of which is borne by the Government.

Conversion Provisions.—The premium for Yearly Renewable Term Insurance increases with the age of the insured, and becomes prohibitive at the older ages. It was necessary, therefore, to provide for conversion into insurance at level premium rates. Provision was made in the original act for the conversion of the yearly renewable term (war time) insurance into permanent United States Government Life Insurance. In order to convert yearly renewable term insurance into any form of permanent Government Life Insurance, it was necessary for an equal amount of yearly term insurance to be in force at the time of conversion. If the term insurance has lapsed, it may be reinstated, provided the necessary requirements can be complied with. No medical examination was necessary to convert term insurance which was in force.

Term Payments and Disabilities.—On June 30, 1934, monthly installments of term insurance were being paid to 12,976 permanently and totally disabled veterans and to the beneficiaries of 127,551 deceased veterans as compared with 12,972 disability and 129,287 death awards on June 30, 1933. This decrease in the number of death awards is due to the operation of section 303 of the World War Veterans Act, which provided for the payment in lump sum of the commuted value of the unpaid installments upon the death of the beneficiary named in the policy. These lump sum payments totaled $9,839,716 during the fiscal year 1934, and $153,046,117 to June 30, 1934. Permanent total disability payments averaging $47.45 per month are being made on insurance valued at $107,081,209. An analysis of the disabilities for which term insurance is being paid discloses that neuropsychiatric diseases are the disabling cause in 46% of the awards, tuberculosis in 28%, and general medical and surgical conditions in 26%. To June 30, 1934, 24,183 disability awards have been terminated; 20,652 by death; 3,509 by recovery; and 22 for other reasons. Approximately 57% of the terminations by recovery and 68% of the terminations by death were in the tuberculosis group. Of the 127,551 death claims on which installments were being paid as of June 30, 1934, 111,904 or 88% of the veterans died prior to the official closing date of the World War, July 2, 1921. These payments are being made to 75,041 parents, 20,438 widows, 2,208 children, and 29,864 other beneficiaries.

Automatic Insurance. — Payments of automatic insurance, provided for those who were permanently and totally disabled or who died within 120 days after entrance into service and before making application for term insurance, are being made to 299 permanently and totally disabled veterans, of whom 195 are suffering from neuropsychiatric diseases, 61 from tuberculosis, and 43 from general medical and surgical conditions. In the cases of 7,010 deceased veterans, this insurance is being paid to their beneficiaries, classified as follows: 5,921 parents, 596 widows and 493 children. The disbursements for term and automatic insurance during the fiscal year ended June 30, 1934, totaled $103,268,273, and to the above date $1,724,052,438, of which $453,948,806 was received in premiums.

United States Government Life Insurance.—As of June 30, 1934, there were 598,226 Government Life (converted) insurance policies in force, aggregating $2,666,733,150 of insurance, as compared with 616,069 policies in force aggregating $2,782,708,583 of insurance at the close of the preceding fiscal period. The centralization of insurance activities was accomplished during the fiscal year and all operations in connection with the granting of policy loans and the collection of premiums, loans and loan interest are now being conducted by the Central Office. Application for United States Government Life (converted) Insurance approved during the fiscal year 1934 totaled 13,774, aggregating $41,295,750, as compared with 20,917 applications amounting to $80,565,934 approved during the fiscal year 1933. The total number of applications approved as of June 30, 1934, was 913,556, amounting to $4,036,743,487.

The following table shows the number and amount of United States Government Life (converted) insurance policies active as of June 30, 1934, subdivided by type of policies:

Type of Policy		
20 Payment Life	157,803	$677,331,656
20 Year Endowment	107,492	312,051,828
Ordinary Life	135,493	710,676,861
30 Year Endowment	31,438	134,548,096
Endowment at 62	32,607	156,737,172
30 Payment Life	28,220	143,848,370
Extended Insurance	32,288	98,943,071
Paid-up Insurance	2,819	2,942,836
5 Year Level Premium Term	6,836	29,775,157
5 Year Convertible Term Insurance:		
Duration less than 5 years, First Period	16,604	106,455,644
Duration less than 5 years, Second Period	22,615	152,167,807
Duration more than 5 years	24,011	141,254,652
Total	598,226	$2,666,733,150

DOMICILIARY CARE

On June 30, 1934, the veteran population reported as present in domiciliary status in facilities under the jurisdiction and control of the Veterans' Administration totaled 9,404, as compared with 11,187 on June 30, 1933, a decrease of 1,783 during the fiscal year. The number present in domiciliary status on June 30, 1934, was divided as to color and sex as follows: white males, 8,408; white females, 34; colored males, 962. The approximate average age of the veterans of each of the major wars who were present in domiciliary status at the close of this fiscal year was as follows: Civil, 88; Spanish-American, 60; and World, 41. The percentage distribution of the membership by wars as of June 30, 1934, was as follows: Civil, .56; Spanish-American and Philippine Insurrection, 15.58; World, 76.71; other wars, .45; and soldiers who served during peace time, 6.70.

In conformity with the Act of Aug. 27, 1888 (U. S. C., title 24, sec. 134), the Federal Government is required to reimburse State or Territorial homes for disabled volunteer soldiers at the rate of $120 per year for each person domiciled therein who is eligible for similar care in facilities controlled by the Veterans' Administration. During the fiscal year ended June 30, 1934, an average of 4,357 such persons were cared for.

HOSPITALIZATION

Patient Load.—As of June 30, 1934, there were remaining in hospitals 40,059 patients whose treatment was authorized by the Veterans' Administration. This number represented an increase of 6,264 over the number remaining in hospitals as of June 30, 1933. This increase is due largely to the modification and liberalization by legislation which became effective durduring the above period. The above increase occurred in the non-service group, the patients of this class having increased from 18,931 as of June 30, 1933, to 27,055 at the close of the fiscal year 1934.

Classification.—The patient load as of June 30, 1934, consisted of 39,445 veterans, classified as follows: World War, 35,754; Spanish-American War, 2,229; Civil War, 194; all other wars, expeditions and occupations, 97; and peace time service, 1,171. Of the 35,754 World War veterans but 11,799 were under treatment for disabilities determined to be of service origin. In addition to the United States veterans, there were under treatment 80 veterans of countries allied with the United States in the World War, 492 members of Federal agencies, principally the Civilian Conservation Corps and Civil Works Administration, and 42 miscellaneous beneficiaries. Included in the 39,445 United States veterans are 250 females and 3,188 colored beneficiaries.

Of the patients in hospitals at the close of the fiscal period ending June 30, 1934, 13 per cent were suffering from tuberculosis, 56 per cent from neuropsychiatric diseases, and 31 per cent from general medical and surgical conditions. This represents a marked change in the character of the patient population since June 30, 1923, when 41 per cent of the patients were under treatment for tuberculosis, 39 per cent for neuropsychiatric diseases, and 20 per cent for general conditions.

Admissions.—Since March 3, 1919, when the acquisition of government hospital facilities was first authorized for the treatment of veterans of the World War, there have been 1,341,524 admissions to hospitals, of which 63,900 were made during the year ended June 30, 1934. Since June 7, 1924, when hospitalization was first authorized for the veterans of all wars without regard to the origin of their disabilities, 583,328 or 63 per cent of all admissions have been for the treatment of the non-service class. Approximately 80 per cent of the admissions this year were for non-service-connected disabilities. Of the veterans who served in the armed forces of the United States admitted to hospitals during this year, approximately 89 per cent had served in the World War and 7.2 per cent in the Spanish-American War.

An analysis of the types of hospital admissions during the fiscal period ending June 30, 1934, shows that 26,286 or 41.14% were first admissions, 36,220 or 56.68% were readmissions, and 1,394 or 2.18% were transferred from other facilities. During this period 8,889 admissions were authorized for observation or treatment of pulmonary tuberculosis, 5,695 for psychotic or mental diseases, 6,841 for other neuropsychiatric disorders, and 42,475 for general medical and surgical conditions.

Discharges.—During the fiscal year 1934 the hospitalization of 108,676 patients was authorized by the Veterans' Administration. Of those treated, 58,713 were discharged after an average of 122.1 in-patient days. Approximately 66% of the patients discharged during this year had been under treatment for general diseases or conditions, 11,341 or 19% for neuropsychiatric diseases, and 15% for pulmonary tuberculosis. Included in the 58,713 discharged during this year are 488 cases in which the veteran was originally admitted for hospital treatment and later transferred to domiciliary status within the same facility.

TOTAL DISBURSEMENT

The total disbursement as of June 30, 1934, for administration and all forms of benefits provided for soldiers who served in the armed forces of the United States during the various wars and peace time service was $16,770,131,746.76. This amount does not include loans made to veterans secured by adjusted service certificates or U. S. Government life insurance policies. The following statement shows the total disbursements made during the fiscal year 1934, subdivided by purpose:

Compensation and Pension Benefits:	
World War—	
Living Veterans:	
War time service connected disability	$139,445,823
War time non-service connected disability	9,784,579
Emergency Officers' retirement pay	2,181,250
Deceased veterans	32,785,872
War of 1812—(Deceased veterans)	3,223
Mexican War—(Deceased veterans)	198,558
Indian Wars—	
Living veterans	2,178,191
Deceased veterans	1,537,856
Civil War—	
Living veterans	20,051,397
Deceased veterans	49,763,326
Spanish American War—	
Living veterans	47,933,272
Deceased veterans	7,680,840
Peace Time—	
Living veterans	6,223,411
Deceased veterans	1,609,189
Total Compensation and Pension Benefits:	
Living veterans	227,797,923
Deceased veterans	93,578,864
Military and Naval Insurance	103,268,274
Adjusted Service and Dependent Pay	1,895,111
Adjusted Service Certificates (matured by death)	23,384,804
Administration, Medical, Hospital and Domiciliary Care	66,484,288
Hospital and Domiciliary Facilities and Services (construction)	3,170,648
Total disbursements	$519,579,912

The amount of $26,258,409 disbursed from U. S. Government Life Insurance Fund, Horatio Ward Fund, General Post Fund, and disbursements for miscellaneous purposes are not included in the above figures.

WATERWAYS AND HARBORS

BY E. M. MARKHAM

MAJOR GENERAL, U. S. ARMY; CHIEF OF ENGINEERS, WAR DEPARTMENT

INLAND WATERWAYS

Location and Description.—The principal systems are the Great Lakes together with the New York Barge Canal and the Hudson River; the Mississippi system including the Mississippi, Missouri, Ohio, Illinois River to Chicago and the important tributaries; the rivers of the Atlantic Coast and the intracoastal waterway system connecting these rivers; the rivers of the Gulf Coast, an inland waterway extending from Pensacola *via* New Orleans down the Texas Coast to Corpus Christi, connecting with the numerous southern Louisiana waterways and with the Mississippi system; the San Joaquin-Sacramento system in California, and the Columbia system in the northwest and the smaller Pacific Coast rivers. These are improved or in course of improvement to provide navigation facilities commensurate with their commercial importance. The completion of this work has been greatly accelerated by the emergency construction program of the Federal Government.

Channel Depths.—The Great Lakes, which are really inland waterway systems, have natural deep water navigation except in the connecting channels. From Lake Superior to Lake Ontario, these connecting channels have been artificially deepened so that the available draft is at least 21 feet. These depths are being increased to provide for the passage of vessels of 24-foot draft. The more important harbors have depths equal to existing channel depths. The New York State Barge Canal has a depth of 12 feet. The various sections of the intracoastal waterway system between Bordentown on the Delaware River and Wilmington on the Cape Fear River have been completed to a project depth of 12 feet, while the sections between Wilmington and Miami have been or are being improved to project depths of 7, 8, and 10 feet. Along the Gulf Coast, projects have been adopted to provide channels 9 and 10 feet deep between Pensacola Bay and Corpus Christi, Tex. The Mississippi River has a 9-foot depth from Baton Rouge to St. Louis, with 6 feet thence to St. Paul, and work is actively in progress on the 9-foot channel between St. Louis and St. Paul as a part of the emergency construction program. The Illinois waterway now has an available 9-foot channel and the Sacremento River a 10-foot channel as far as the city of Sacramento.

Status of Waterway Transportation.—Inland waterway transportation, after a widespread decline coincident with the extensive development of railroad facilities throughout the country, has shown a pronounced increase in the past ten or fifteen years. This trend toward a more extensive use of waterways has grown in spite of economic depression, and is due to a number of causes. Among these is a realization that, with suitable conditions as to character of traffic, origin and destination with respect to waterways, suitable channels, and modern carriers and terminals, water transportation is inherently cheaper than any other form. Waterways are particularly valuable in the handling of raw products and commodities for which the country demands low transportation costs. There is a growing realization that the three means of internal traffic, *viz.*, rail, highways and waterways, are properly cooperative rather than competitive and that the development of each of them is not only necessary to the public but also to all transportation agencies concerned. This is particularly evident in the Mississippi Valley where, in addition to the established service of the Inland Waterway Corporation, a number of private carriers are operating. The intensive traffic on the upper Ohio River, which resulted with the completion of the 9-foot channel from Pittsburgh to New Orleans, has decreased but little during the depression, and the revival of business should show a large increase in tonnage. The importance of our national waterways system, the need of completing it and of intensively developing its traffic in coordination with other parts of the transportation system, are fully appreciated by the people at large.

Improvement of New Waterway Projects.—At the close of the fiscal year 1934, there were 969 authorized river and harbor projects in force. Active operations during the fiscal year were carried out on 344 of these projects, and new work, as a part of the emergency construction program, was undertaken on 126 projects. Total funds made available by the Federal Emergency Administration of Public Works for application to river and harbor projects was

$343,000,000. These funds were in addition to appropriations of $53,000,000 made by Congress for the maintenance of existing river and harbor work and for flood control on the Mississippi and Sacramento rivers. The expenditure of these funds has provided direct and indirect employment estimated at 300,000 persons and has resulted in a substantial contribution to the relief of unemployment as well as materially advancing the development of the national waterways for navigation and the control of floods.

GREAT LAKES

The improvement of Great Lakes harbors and channels has been vigorously prosecuted during the year under the Public Works program, funds totaling $21,536,200 having been made available therefor. The deepening of the Great Lakes connecting channels to afford vessel drafts of not less than 24 feet at low water datum for downbound vessels was well advanced to completion; Calumet and Indiana Harbors are being enlarged by breakwater construction and by dredging; at Agate Bay, Minn., a portion of the harbor was deepened from 18 to 26 feet; dredging and breakwater improvements to deepen channels and enlarge harbor facilities were carried out at Duluth-Superior Harbor, Minn. and Wis.; at Ashland, Wis.; Marquette, Mich.; Green Bay, Wis.; Port Washington, Wis., the connecting channels of the Great Lakes, comprising the St. Marys River, Detroit River, St. Clair River, Channels in Lake St. Clair, and Harbors at Toledo, Sandusky, Huron, Lorain, Cleveland, Fairport, Ashtabula, Conneaut, Buffalo, Niagara River and Ogdensburg.

INTRACOASTAL WATERWAYS

Funds allotted by the Public Works Administration have provided means for active prosecution of projects for a continuous protected waterway along the Atlantic coast from Trenton on the Delaware River to Miami, Fla., a distance of 1,435 miles. The completion of this waterway is now definitely in sight, all that remains being the excavation of 16 miles of a deep land cut in South Carolina between Little River and Winyah Bay The section along the Florida coast from St. Johns River to Miami, 8 feet in depth, is now practically completed. At the present time vessels of a draft not suitable for long sea voyages have a continuous protected route along the Atlantic coast from the Delaware River to Miami, except in the run from the Cape Fear River to Winyah Bay, a distance of less than 100 miles. The project depths in the waterway vary from 12 to 7 feet, 12 feet being available from Delaware River to Wilmington, N. C., and thence 7 to 10 feet south to St. Johns River, Fla. Along the Gulf coast an inland protected waterway for vessels of moderate draft has been completed from Choctawhatchee Bay *via* Pensacola Bay, Mobile Bay, Mississippi Sound, and Lake Pontchartrain to New Orleans, providing for the most part a channel 9 feet in depth. The length of this section of the waterway is about 235 miles and furnishes inland connection between the cities of Pensacola, Mobile, and New Orleans. Westward from the Mississippi at New Orleans, an inland waterway having a depth of 9 feet has been fully completed during the past year to the Galveston-Brazoria County line 17 miles westward from Galveston Harbor. Between New Orleans and Morgan City, the waterway follows 2 routes—the northerly route being *via* the Mississippi River to Plaquemine, La., and thence south to Morgan City, and the southern and more direct route being *via* Harvey Lock, Lockport and Houma to Morgan City. The total length of the completed waterway *via* Plaquemine is 447 miles, and *via* the more direct Harvey Lock route, 373 miles. Southwesterly from the Galveston-Brazoria County line to Corpus Christi, about 200 miles, the necessary rights of way for extension of the waterway are being secured by local interests as required by Congress in authorizing the project.

MISSISSIPPI RIVER

The Mississippi River projects

provide for 9-foot navigation from Baton Rouge to St. Paul and Minneapolis. Ocean shipping goes to Baton Rouge. The accelerated Public Works program has greatly increased the rate of progress on the canalization of the upper Mississippi River between the Illinois River and St. Paul and Minneapolis. Of the 27 locks and dams which will be required for the completion of this canalization, 7 locks and 4 dams have been completed and 13 locks and 6 dams are now under construction. The 9-foot project as a whole was about 16 per cent completed at the end of the fiscal year. The 9-foot project on the Tennessee River was continued throughout the year with the construction of a lock at the Joe Wheeler Dam where the dam is being constructed by the Tennessee Valley Authority. The improvement of the Missouri River to secure a navigation channel 6 feet deep to Kansas City is practically completed, and the channel has been opened to traffic. Under allotments totaling $35,849,000 under the Administration of Public Works, the project has been advanced to St. Joseph, and work is under way for its continuance to Sioux City. To provide an additional water supply during the low water season, a large hydraulic fill earth dam and reservoir is under construction at Fort Peck, Mont., with a capacity of 19,000,000 acre feet.

COLUMBIA RIVER SYSTEM

The Columbia River system has been improved to provide ocean-going vessels access to Portland and Vancouver, Wash. As a part of the emergency construction program, a combination navigation and hydraulic dam is now under construction at Bonneville, Ore., about 40 miles from Portland. This dam will ultimately develop 516,000 kilowatts. It is provided with a lock with a minimum depth over the sills of 27 feet, which will permit ocean-going vessels to ascent the Columbia River to The Dalles and will materially increase the facilities afforded to navigation on this river.

PORTS

Ocean Port Depths.—The maximum depth that has been provided in harbor channels is 40-feet at mean low water except in the channel through the outer bar at San Francisco, where a depth of 50 feet has been authorized to afford safe navigation to deep draft vessels in the heavy swells there encountered. The depth of 40 feet has been afforded at New York and other ports of primary importance to the Navy. While more than 90 per cent of the world's shipping draws less than 30 feet, to afford full free and unimpeded navigation, a depth of 35 feet is necessary and has been provided at the principal harbors, and such a depth is advisable at any port engaged in ocean shipping where it can be provided at a cost commensurate with the value of commerce.

New Projects. — The emergency construction program has accelerated the provision of increased depths and better navigation facilities at a number of major ports. Anchorage facilities at Boston Harbor have been increased to a depth of 40 feet. An entrance channel has been deepened at New Haven. Material improvements have been made in the interior and connecting channels in New York harbor. Additional anchorage areas have been provided in the Delaware River between Philadelphia and the sea, and the 25-foot channel between Philadelphia and Trenton is well advanced. The deepening of the main entrance channel at Miami, Fla., to 30 feet is under way. On the Gulf Coast, Tampa, Fla., and Pensacola, Fla., Port Arthur, Beaumont, Orange and Texas City have been provided with improved facilities. The Houston ship-channel, Freeport Harbor and Port Aransas channels have been or are being deepened to meet the demands of an increasing traffic at these ports. On the Pacific Coast the entrance channel at San Diego harbor has been deepened to 40 feet, and material improvements have been made at San Francisco, Olympia, Tacoma and Seattle.

Port Facilities.—Throughout the past year state, port, municipal, and private interests have made extensive repairs to existing facilities and many additional facilities have been provided for the economic handling of freight through American ports, but only a few of the more important developments can be enumerated. At Boston, the Tidewater Oil Company has announced plans to build a 45-acre fireproof petroleum terminal on the Chelsea River. At New York, Pier 54, North River, owned by the City and operated by the Cunard Steamship Company, was reconstructed, and plans were made for the construction of two new steamship terminals on the North River, one of which has been leased by the Eastern Steamship Lines, Inc. and the other by the Italian Terminal Service, Inc. Work was initiated during the year on the first unit of the Midtown Hudson Tunnel, consisting of a two-way tube between West 39th Street, Manhattan, and Weehawken, N. J. The Albany Port Commission continued work on the comprehensive plan for the port which contemplates more than a mile of dock construction, 5 fireproof steel or concrete sprinklered transit or storage sheds with 360,000 square feet of floor space, a 13,500,000 bushel grain elevator, the largest in the world, 20 acres of open and 25,000 square feet of covered lumber storage. The facilities at Baltimore were materially increased by the new $2,000,000 import and export pier of the Pennsylvania Railroad at the foot of Clinton Street, Canton, which takes the place of three piers destroyed by fire in 1932. The pier has a total length of 930 feet and a width of 223 feet, with a two-story shed having a storage capacity of 266,000 square feet. At Canton Elevator No. 3 of the Pennsylvania Railroad pneumatic grain handling devices were installed. At Philadelphia additional dry storage for approximately 5,000,000 board feet of lumber will be provided by the construction of a steel shed 1,000 feet long and 90 feet wide to be erected on the south section of open Pier 96 in conjunction with 25 acres of open storage space adjoining, for handling all Pacific Coast forest products. At Gulfport, Miss. work will shortly be initiated on the construction of a new pier and transit warehouse with cold storage facilities. Shipside storage facilities at the port of New Orleans have been materially increased by recent constructions on the former site of the Jahncke Dry Docks, Inc. Ship repair facilities at Galveston will be increased by a 10,000-ton floating dry dock and other equipment. At Houston, Pier No. 12 was reconstructed, and other public wharf facilities remodeled and improved to handle a greater volume of traffic. A new oil terminal was installed, consisting of a wharf, with storage, rail and pipe line facilities. At Corpus Christi, Tex., and at Lake Charles, two basic alkali plants, the first in the South, are under construction. Considerable progress was made at Los Angeles on the proposed development program involving about $2,500,000. At San Diego, in addition to the improvements made by the Harbor Commissioners, the United States Navy has expended large sums for the expansion of its facilities, including repairs and additions to the destroyer dry dock base. The facilities at Stockton, Calif., will be further increased by the recent bond issue of $900,000. Plans are being formulated for a cotton compress and warehouse, and the first unit of the grain warehouse is practically completed, consisting of a warehouse and storage space for sacked grain and a 5-story mill building for bulk grain. A conveyor system is under construction for sacked and bulk grain from the terminal to shipside. The Board of State Harbor Commissioners of San Francisco authorized the sale of $500,000 harbor bonds for the construction of improvements at the southerly portion of the water-front. Pier 42 will be extended 140 feet and a new track constructed along the south side as well as 3 adjustable cargo aprons. At Portland, Ore., there has recently been considerable activity in maintenance and repair work. A shipside dock and warehouse costing approximately $150,000 was built, a large bulk commodity handling plant is being constructed, and the McCormick Terminal is being rebuilt. At Seattle, in addition to repair work, the reconstruction of the fresh fish cold storage facility was nearly completed.

INLAND WATERWAY COMMERCE

Waterways Improved by the Government. — The following shows freight traffic for 1933 of inland waterways under improvements by the Federal Government, excluding short deep stretches of rivers (like the lower Hudson and Delaware), which are really approaches to ports:

FREIGHT TRAFFIC OF INLAND WATERWAYS IMPROVED BY GOVERNMENT (1933)

Waterways	Short tons	Value
Hudson R., middle stretch	2,664,173	$ 63,415,589
Hudson R., upper stretch	2,645,676	99,121,624
Delaware R., above Philadelphia	2,707,384	12,986,725
Chesapeake-Delaware Canal	1,191,242	44,721,734
Waterway from Norfolk, Va., to the Sounds of North Carolina	120,660	2,195,617
St. Johns R., above Jacksonville	146,965	5,918,254
All others, Atlantic Coast	14,359,384	462,550,761
Tombigbee-Warrior System	1,125,383	26,204,412
Southern Louisiana Waterways (excluding Mississippi R.)	2,359,786	45,394,214
All others, Gulf Coast	26,124,085	272,371,784
San Joaquin R.	966,080	26,499,894
Sacramento R.	1,175,103	32,563,200
Columbia R. and lower Willamette below Vancouver and Portland (excluding ocean commerce)	5,410,670	41,332,718
All others, Pacific Coast	8,222,043	68,475,581
Mississippi R., below Vicksburg (excluding ocean commerce)	5,794,100	185,613,007
Mississippi R., Memphis to Vicksburg	3,968,327	172,412,333
Mississippi R., Cairo to Memphis	2,878,553	167,463,411
Mississippi R., Minneapolis to Ohio River (Cairo)	2,609,368	102,047,926
Ohio River	16,751,034	199,234,780
Monongahela R.	12,539,764	71,391,380
Allegheny R.	2,827,163	10,456,547
Kanawha R.	1,858,638	10,521,420
All others, Mississippi System	5,155,227	44,191,511
All others in the United States	66,781,283	907,417,218
TOTAL	190,382,091	$3,074,501,640

FREIGHT TRAFFIC OF OTHER INLAND WATERWAYS (1933)

Waterways	Short tons	Value
New York State Barge Canal	4,074,002	$ 260,409,813
Lehigh and Delaware Division Canals, Pa	78,297	87,693
Chicago Sanitary Drainage Canal	419,599	3,403,417
New Basin Canal, La	107,789	2,706,582
All others of record	1,177,828	68,086,708
TOTAL	5,857,515	$ 334,694,213
GRAND TOTAL, corrected for duplications because of commerce moving over two or more waterways	182,965,000	$3,088,615,000

NET TOTAL INTERNAL WATERWAY COMMERCE (1923-1933)

Year	Short tons	Value
1924	173,200,000	$3,446,000,000
1925	204,569,000	3,950,450,000
1926	217,000,000	3,680,000,000
1927	219,000,000	3,930,000,000
1928	227,300,000	3,838,000,000
1929	245,894,000	3,871,300,000
1930	226,760,000	3,557,000,000
1931	179,735,000	2,816,463,000
1932	151,276,000	2,589,992,000
1933	182,965,000	3,088,615,000

COASTWISE COMMERCE
(including intercoastal)

Port	Tonnage both ways	Value
Portland, Me.	2,116,407	$ 45,726,640
Boston, Mass.	12,257,576	400,516,789
Providence, R. I.	4,409,562	330,102,256
New York, N. Y.	32,153,392	1,772,390,937
Philadelphia, Pa.	18,567,113	520,505,239
Baltimore, Md.	5,495,667	168,238,731
Norfolk-Newport News, Va.	17,631,327	392,803,432
All others, Atlantic Coast	19,542,662	749,291,685
New Orleans, La.	6,240,280	$ 168,628,791
Galveston, Houston, Texas City, Tex.	16,323,499	350,827,700
The Sabine Ports	24,233,421	205,896,844
All others, Gulf Coast	10,331,523	157,143,019
Los Angeles, Calif.	13,167,473	676,178,792
San Francisco Bay and Harbor, Calif.	15,406,803	676,943,628
Portland, Ore.	3,286,321	183,124,407
Tacoma, Wash.	1,013,049	42,968,992
Seattle, Wash.	3,983,043	242,075,942
All others, Pacific Coast	10,164,019	190,654,657
Ports of Hawaii	3,222,294	$ 196,254,855
Ports of Alaska	253,893	33,659,390
Ports of Puerto Rico	891,210	75,423,026
TOTAL, all ports	220,690,534	$7,579,355,752
TOTAL, ALL PORTS, corrected for duplications of receipts and shipments	110,345,767	$3,789,677,876

COMMERCE THROUGH THE PANAMA CANAL

Fiscal Year	Intercoastal[1]	Total
1925	9,496,259	23,958,836
1926	9,871,210	24,747,541
1927	11,365,592	31,078,000
1928	10,833,443	33,186,394
1929	11,084,212	34,342,567
1930	11,174,429	33,633,860
1931	9,862,020	28,092,736
1932	7,417,742	22,184,958
1933	7,197,801	20,280,655
1934	9,877,602	27,684,889

[1] Included in coastwise figures.

FOREIGN AND DOMESTIC COMMERCE OF PORTS DURING THE CALENDAR YEAR 1933
(Short tons)

Grand Divisions	Foreign				Domestic		Grand Total	
	Imports		Exports					
	Tons	Value	Tons	Value	Tons	Value	Tons	Value
Atlantic coast	22,765,813	$1,747,427,729	8,557,836	$1,242,696,331	196,711,376	$7,861,288,094	228,035,025	$10,851,412,154
Gulf coast	2,541,206	107,224,093	13,225,772	516,373,716	65,034,888	1,077,311,195	80,801,866	1,700,909,004
Pacific coast	2,363,444	185,628,890	9,413,806	215,102,072	69,107,305	2,557,911,907	80,884,555	2,958,642,869
Great Lakes	3,034,001	77,435,031	7,564,744	45,998,193	142,968,023	1,954,713,752	153,566,768	2,078,146,976
Grand total, unadjusted	30,704,464	$2,117,715,743	38,762,158	$2,020,170,312	473,821,592	$13,451,224,948	543,288,214	$17,589,111,003
Adjusted total, eliminating all known duplications	30,704,464	$2,117,715,743	38,762,158	$2,020,170,312	260,822,489	$7,532,702,333	330,289,111	$11,670,588,388

	Tons	Value
Total commerce of the United States, 1933, adjusted total	394,104,000	$12,597,000,000

ORGANIZATION OF THE NAVY

By William D. Leahy

Rear Admiral, U.S.N.; Chief, Bureau of Navigation, Navy Department

ADMINISTRATION

The President.—By constitutional provision the President of the United States is Commander in Chief of the Navy. The President exercises his command through the Fleet commanders and his administrative function through the Secretary of the Navy, who is a member of the Cabinet and the direct agent and representative of the Commander in Chief of the Navy, and who, in addition, is charged by statute with responsibility for carrying out the laws governing the Navy and for the expenditure of Naval appropriations.

The Secretary of the Navy, as directly responsible to the President and to Congress, exercises civilian control of the Navy and is charged with responsibility for decisions in all major matters affecting the administration of the Naval establishment afloat and ashore.

Assistant Secretary of the Navy.—He is assisted by an Assistant Secretary who performs such duty as may be assigned by the Secretary of the Navy or required by law. The Assistant Secretary is at the present time, in addition to other duties, specifically charged with the general administrative control of the material activities of all shore establishments of the Navy, including public works.

Other Department Officials.—In the absence of the Secretary of the Navy his duties are performed by the Assistant Secretary, and in the absence of the Assistant Secretary, the duties devolve upon officials of the Navy Department in the following order: The Chief of Naval Operations, the Chief of the Bureau of Navigation, the Chief of the Bureau of Ordnance, the Chief of the Bureau of Engineering, the Chief of the Bureau of Aeronautics, and the Judge Advocate General.

BUREAUS AND BOARDS

Office of the Assistant Secretary.—The business of the Navy Department, not specifically assigned by law, is distributed in such manner as the Secretary of the Navy considers expedient and proper among the following Bureaus and Offices:

Office of the Assistant Secretary of the Navy, which is specifically charged with general administrative control of the material activities of the shore establishment.

Office of the Chief of Naval Operations, which is charged by law with the operations of the Fleet and with the preparation and readiness of plans for its use in war. The Chief of Naval Operations, who has the rank of Admiral while holding the office, comprises in his duties the direction of the Office of Naval Intelligence, the Office of Fleet Training, the operation of the Communication Service, the operations of the Marine Corps, the operations of Coast Guard vessels when operating with the Navy, of Naval Districts and of vessels assigned to the Naval Reserve. He is also charged with the duty of so coordinating repairs and alterations to vessels and the supply of personnel and material thereto as to insure at all times the maximum readiness of the Fleet for war.

The Bureau of Navigation, under the direction of the Secretary of the Navy, is responsible for the procurement, education, training, discipline, and distribution of officers and enlisted personnel of the Navy, including the Naval Reserve. It is also responsible for the provision of navigational equipment, and for the upkeep and operation of the Naval Academy, the Post Graduate School, the Naval War College, Schools for Enlisted Men, Training Stations, the Naval Home, the Naval Observatory, and the Hydrographic Office.

The Hydrographic Office makes surveys of foreign waters and furnishes charts and navigational publications to the Navy and to merchant vessels. The publications include Sailing Directions, Light Lists, Radio Aids to Navigation, Notices to Mariners, Notices to Aviators, the Naval Air Pilot, and Daily Memoranda in regard to dangers and changes in Aids to Navigation.

The Bureau of Ordnance, under the direction of the Secretary of the Navy, is responsible for the design, manufacture, procurement, maintenance, issue, and efficiency of all offensive and defensive arms, and armament, including armor. It is also responsible for the upkeep and operation of Naval Gun Factories, Naval Ordnance Plants, Naval Torpedo Stations, Naval Proving Grounds, Naval Powder Factories, Naval Ammunition Depots, Naval Magazines on shore, and Naval Mine Depots.

The Bureau of Engineering, under the direction of the Secretary of the Navy, is responsible for the design, construction, installation, and maintenance of all propelling machinery together with its auxiliaries; electric wiring, radio and sound equipage, and appliances used by the Naval Communication Service. It is also responsible for the upkeep and operation of the Engineering Experiment Station, the Research Laboratory, the Boiler Laboratory and the Material Laboratory.

The Judge Advocate General, under the Secretary of the Navy, has cognizance of all matters of law arising in the Navy Department, and performs such other duties as may be assigned to him by the Secretary of the Navy. The following duties have been assigned to the Judge Advocate General: examination of questions relating to rank and precedence to promotions and retirements, and to the validity of proceedings in court-martial cases; the supervision and control of Naval prisons and prisoners, including prisoners of war; recommendation in regard to pardons; interpretation of statutes; preparation of advertisements, proposals, and contracts; insurance, patents; the examination of bills and resolutions introduced in Congress and referred to the Navy Department for report; the drafting of proposed legislation arising in the Navy Department; and the preparation of correspondence in connection with these duties. The Judge Advocate General also examines and reports upon questions of international law, searches titles, examines into the purchase, sale, transfer, and other questions affecting lands and buildings pertaining to the Navy. He is charged with the care and preservation of all muniments of title to land acquired for naval uses.

The Bureau of Aeronautics is under the direction of the Secretary of the Navy, responsible for all that relates to the design, construction, fitting out, testing, repair, and alteration of naval and marine corps aircraft and, except as specifically assigned to other cognizance, instruments, equipment, and accessories pertaining thereto. It provides aircraft in accordance with approved operating plans.

The Bureau of Construction and Repair, officered by the Construction Corps, is under the direction of the Secretary of the Navy, responsible for the general design, the structural strength, stability, and seaworthiness of all ships of the Navy except airships. It is also responsible for the upkeep and operation of experimental model basins, wind tunnels, and material laboratories.

The Bureau of Yards and Docks, officered by the Civil Engineer Corps, is under the direction of the Secretary of the Navy, responsible for the design, construction, alteration, and inspection of the public works and public utilities of the shore establishment. It, in addition, has custody of real estate not in use by other subdivisions of the Navy Department, and handles funds involved in the acquisition and disposition of real estate.

The Bureau of Supplies and Accounts, officered by the Supply Corps, is under the direction of the Secretary of the Navy, responsible for the procurement, custody, shipment, warehousing and sale of all supplies, fuel, and other property of the Navy except as otherwise provided; the supply and disbursement of funds and the payment for articles procured for the Navy; the keeping of money and property accounts and the upkeep and operation of the Naval Clothing Factory and coffee roasting plants. It has cognizance of the transportation of naval property, charters merchant vessels, procures cargoes, and loads and discharges supply ships, colliers, and tankers.

The Bureau of Medicine and Surgery, officered by the Medical Corps, is under the direction of the Secretary of the Navy, responsible for the maintenance of the health of the Navy, and for the care of the sick and injured. It is also responsible for the upkeep and operation of naval hospitals, medical supply depots, medical laboratories, the Naval Medical School, and of technical schools for the training of members of the Medical Corps, Dental Corps, Nurse Corps, and Hospital Corps.

The General Board is composed of not less than five senior officers of the Line of the Navy, a majority of whom are of flag rank and none of whom have any administrative or executive duties. It is the duty of the General Board to consider the United States Naval policy and the general terms of its application; to recommend changes in the policy that may become necessary from time to time; to recommend the number and type of ships proper to constitute the Fleet, their military characteristics, and such building program as may be requisite; to advise the Secretary of the Navy regarding the general policy as to naval districts, navy yards, naval stations, operating bases, and other shore activities; and to consider and report upon such subjects as the Secretary may direct.

The Board of Inspection and Survey consists of one flag officer, two captains, one naval constructor, one commander or lieutenant commander for aviation duties, one commander designated as recorder, and such other officers as may be necessary to carry out its duties. The Board, under specific orders in each case, is charged with the acceptance examinations and trials of all naval vessels and aircraft, except experimental aircraft, and with the inspection of all vessels newly commissioned. It inspects all naval vessels upon their return from foreign stations, and all vessels as often as once in three years when practicable, and prior to the undertaking of a general overhaul. Reports of acceptance trials are made to the Secretary of the Navy and reports of material inspections of naval vessels to the Chief of Naval Operations. Copies are distributed to subdivisions of the naval establishment interested in the report.

The Navy Budget Officer, under the supervision of the Assistant Secretary, is charged with the duty of preparing Departmental estimates for submission by the Secretary of the Navy to the Bureau of the Budget.

The Secretary's Council, composed of the Assistant Secretary of the Navy, the Chief of Naval Operations, all Chiefs of Bureau, the Chairman of the General Board, and the Budget Officer, meets periodically and when called by the Secretary to discuss and coordinate the work of the various subdivisions of the Navy Department.

The Examining Board consist of not less than three officers senior to the officers to be examined for promotion. It conducts examinations of all officers due for promotion with the purpose of determining their mental, moral and professional fitness to perform all their duties at sea, and makes recommendation to the Secretary of the Navy.

The Retiring Board consists of not less than five or more than nine members, two-fifths of whom are members of the Medical Corps of the Navy. Officers considered physically incapacitated to perform the duties of their office may be ordered to appear before the retiring board, which board inquires into the facts touching the nature and occasion of the disability. It reports to the Secretary of the Navy the cause which in its judgment produced the incapacity, whether or not the officer is incapacitated, and whether the incapacity was caused by an incident of the service.

The Joint Board consists of the Chief of Staff of the Army, the Deputy Chief of Staff, the Assistant Chief of Staff, the Chief of Naval Operations, the Assistant Chief of Naval Operations, and the Director of the

War Plans Division. This board makes a study of policies and projects bearing on the national defense and involving joint action of the Army and Navy.

The Aeronautical Board consists of the Chief of the Air Corps, U. S. Army, the Assistant Chief of the Air Corps, one member of the War Plans Division of the General Staff, the Chief of the Bureau of Aeronautics of the Navy Department, the Chief of the Planning Division of the Bureau of Aeronautics, and one member of the War Plans Division of the Office of Naval Operations. The purpose of this board is to prevent duplication of effort and to secure a more complete measure of cooperation and coordination in the development and employment of the Army Air Corps and naval aviation.

The Compensation Board, appointed in 1917 by the Secretary of the Navy and in existence since that date, is composed of a senior member with such other members as may from time to time be appointed, and with the Chiefs of Bureau of Engineering and Construction and Repair as ex-officio members. The duties of the Board are to ascertain, estimate, and determine, in accordance with the terms of contracts the actual costs of vessels building or to be built under contract on a ''cost plus profit'' basis; to make such investigations as are required by the Secretary of the Navy or requested by other Government agencies in connection with settlements and other financial transactions under ''Cost-plus'' contracts, etc.; to examine and report on such relief bills concerning claims as have been introduced in Congress and referred to the Navy Department.

THE MARINE CORPS

The Marine Corps, an integral part of the Navy, is a military organization within the naval establishment, consisting of 1,174 commissioned and warrant officers and 16,000 enlisted men, who perform services both ashore and afloat. The Corps is administered by a Major General Commandant whose headquarters are in the Navy Department, and who is, under the direction of the Secretary of the Navy, responsible for the procurement, discharge, education, training, discipline, and distribution of officers and enlisted personnel, and the administration and general efficiency of the Marine Corps. He is also charged with the upkeep and operation of Marine barracks and Marine posts.

THE SEA FORCES

The combatant force of the Navy is concentrated in the United States Fleet commanded by an Admiral. This Fleet which normally operates as a unit on either the Atlantic or Pacific Coast of North America is subdivided for tactical and administrative purposes into (a) The Battle Force, commanded by an Admiral and consisting of battleships, cruisers, destroyers, airplane carriers, and a mine squadron; (b) the Scouting Force commanded by a Vice Admiral and consisting of cruisers, destroyers and a training squadron; (c) the Submarine Force, commanded by a Rear Admiral; (d) the Base Force, commanded by a Rear Admiral and consisting of the train of supply, repair and service vessels, a patrol squadron of aircraft and the Fleet air bases; (e) the Fleet Marine Force commanded by a Brigadier General of Marines.

In addition to the United States Fleet, the Sea Forces include the Asiatic Fleet, commanded by an Admiral and composed of cruisers, gunboats, destroyers, submarines, mining vessels and aircraft assigned to duty in Asiatic waters; and the Special Service Squadron, commanded by a Rear Admiral and composed of cruisers and destroyers assigned to duty in Central American and West Indian waters.

SHORE STATIONS

The Naval establishment on shore, administered under the immediate supervision of the Assistant Secretary of the Navy, is maintained and operated exclusively for the maintenance and support of the Sea Forces. Its activities are varied, extensive, and widely distributed geographically, including naval districts, naval bases, navy yards, naval magazines, naval hospitals, supply bases, naval radio stations, naval intelligence service, the Naval Academy, the Naval War College, the Naval Post Graduate School, and naval training stations.

NAVAL RESERVE

Fleet.—The Naval Reserve consists of three classes—the Fleet Naval Reserve, the Merchant Marine Reserve, and the Volunteer Naval Reserve. The Fleet Naval Reserve is composed of officers and men in training or qualified for general combatant duties afloat, including aviation duties. This class of the Reserve is organized into divisions and battalions or aviation squadrons of definite strength as to officers and men; each division is required to perform weekly drills, for which its members receive pay, and to perform 15 days active training duty each year for which also they receive pay and allowances. Upon mobilization for war each division is required to officer and man a definitely named vessel now out of commission, or, in the case of aviation divisions, to form definitely specified aviation squadrons; and their training is directed to this end. There are also included in the Fleet Naval Reserve, men transferred thereto after sixteen or twenty years of Naval service, and men assigned thereto after four or more years of Naval service. These men are considered to be already sufficiently trained, and do not, therefore, belong to the before-mentioned organizations, but are available for mobilization detail as required.

The Merchant Marine Naval Reserve is made up of officers and men actually serving on seagoing ships of the American Merchant Marine, who join the Naval Reserve, and are available in the event of war for services on board naval auxiliaries or in the Naval Transportation Service. Generally, it is contemplated that those merchant ships to be taken over by the Navy in the event of war, will continue to be operated by their peace time crews as Naval Reservists.

The Volunteer Naval Reserve is composed of officers and men available for general detail in the event of war, according to the qualifications of the various individuals. They are not required to drill or perform training duty. They may, however, under the law, be permitted to perform training duty with pay if they so desire. Also, they are permitted to associate themselves with divisions of the Fleet Reserve for the purpose of acquiring training, but they do not receive any compensation therefor. Certain of these in specialists ratings, such as Communications, and Hospital Corps units, have formed themselves into organizations for purposes of training or mobilization. The communication organizations are mostly for radio communications; they are made up exclusively of experts in this line, and it is only necessary to add to their training in order that they may be made familiar with Naval communication procedure, and Naval customs.

OPERATIONS OF NAVAL FORCES

By B. L. Canaga

Captain, U. S. N.; Office of Island Governments, Navy Department

EMPLOYMENT OF FORCES

The operations of the Navy have been conducted during the year in accordance with the U. S. Naval Policy to maintain the Navy in sufficient strength to support the national policies and commerce, and guard the Continental and overseas possessions of the United States. Its forces have been disposed so as to accomplish this with a minimum expenditure of funds.

The naval policy, as revised in May 1933, after careful consideration of existing treaties and national policies, which is printed in the appendix of the Annual Report of the Secretary of the Navy, Fiscal Year, 1933, remained unchanged and was promulgated in the same manner as heretofore.

In accordance with the naval policy the operations of our naval forces during the past year have been conducted with the following in view: to exercise and train the units of the fleet to the highest state of efficiency; to organize the Navy for operations in either or both oceans so that expansion will only be necessary in case of national emergency; to protect American lives and interests in disturbed areas; to cooperate fully with other departments of the Government and with the states; to cultivate friendly international relations, and to encourage civil industries and activities useful in war.

The Aleutian Islands Survey Expedition was organized in May and will continue operations until the survey is completed about October, 1934.

ENLISTED PERSONNEL AND OPERATING FORCE PLAN

The operating force plan for the fiscal year, 1934, was based on an appropriation which provided for an enlisted strength of 79,700 men. Before the beginning of the fiscal year the appropriation was impounded to allow only an enlisted strength of 77,000 men. The Chief of Naval Operations decided not to put any ships out of commission so the result of the loss of 2,700 men was that all ships operated below their allowance. In September a portion of the impounded funds was released and authorization was received to increase the enlisted strength to 80,000 men which was finally accomplished on June 30, 1934. With this personnel allowance the operating force plan, in furtherance of the established and approved Naval Policy, maintained in commission and operated at sea a total of 302 ships, including 1 airship. There were also operated in the naval districts and stations 134 small craft of various types.

The *Constitution* completed her exhibition cruise of visiting practically every seaport of the United States, being visited by 4,519,323 persons, and was placed out of commission and put ''in service not in commission'' on June 8, 1934.

During the fiscal year 4 heavy cruisers, 1 aircraft carrier, 1 destroyer and 2 submarines were placed in commission and 30 ships of miscellaneous types including 2 oilers, 1 ocean tug, 1 mine sweeper, 1 submarine and 1 gunboat were placed out of commission. Also 22 vessels of various types were stricken from the Navy Register.

The only change of importance in the present organization of the U. S. Fleet over that of the previous year is the addition of the Fleet Marine Force which was established in December, 1933.

During the fiscal year, 1935, one battleship will go from reduced to full complement and 1 heavy cruiser and 7 destroyers will be commissioned. The Chief of Naval Operations holds the view that when, in accordance with the approved Naval Policy, the composition of the Fleets is established, it is essential that adequate provision be made for manning the ships properly. The fighting efficiency of a Navy is dependent upon the personnel, both officers and men, who man it, and under-manned ships are always at a disadvantage. Therefore, with the entry into service of the new ships, now authorized and being built to bring the Navy into accord with Treaty limits, it is very important that appropriate increases in the personnel be obtained.

In the employment of the Fleets during the past fiscal year, the effect of the geographical position of the United States was forcibily brought to attention. In carrying out the approved plans and policies, naval forces assigned to the areas concerned were obliged to steam great distances. There are occasions when it is not only desirable but often mandatory for naval forces to become familiar with certain important sea-areas, to reach which considerable steaming is necessary, which results in a large consumption of fuel.

For the first time in the history of the Panama Canal, the entire Fleet made a continuous transit of the Canal while engaging in Fleet Problem

XV, which was witnessed by the Chief of Naval Operations.

On May 31, 1934, the President of the United States, accompanied by the Secretary of the Navy and other distinguished guests, reviewed the U. S. Fleet at sea off New York.

AVIATION

The Navy had 936 serviceable airplanes on hand and 227 airplanes on order at the end of the fiscal year, 1934. The *Ranger,* our newest aircraft carrier, was commissioned and placed in service on June 5, 1934, and operated during the remainder of the year, conducting landing tests and shaking down.

The *Macon* operated from the naval Air Station, Lakehurst, until Oct. 12, 1933, at which time she proceeded to the Naval Air Station, Sunnyvale, Calif., and operated under Commander of Aircraft, Battle Force, for the remainder of the year, participating in the exercises while the Fleet was en route from San Diego to Panama and in Fleet Problem XV, operating from Miami for that purpose and returning to her base at Sunnyvale on May 16, 1934.

Approximately 320 Navy planes participated in Fleet Problem XV in addition to which marine aircraft of the Fleet Marine Force stationed at Quantico flew to Puerto Rico to participate in the problem and returned.

Naval aircraft participated during the fiscal year 1934 in the following surveys and notable flights:

1. Alaskan Survey Expedition—2 amphibian planes. Completed August 9, 1933.
2. Surveying the area on the west coast of Central America and the north coast of Panama—2 planes. Completed in December and January.
3. Aleutian Islands Survey—5 Loening amphibians and 1 Douglas amphibian. Started May 5, 1934, probable date of completion October, 1934.
4. Survey of lands near the Salton Sea for the Bureau of Biological Survey by planes from Naval Air Station, San Diego, in April, 1934.
5. Non-stop flight from Norfolk, Virginia, to Canal Zone by 6 P2Y1 planes. Distance 1,788 nautical miles in 25 hours and 30 minutes.
6. One-stop flight from Canal Zone to San Diego by 6 P2Y1 planes. Distance 2859 nautical miles in 32 hours and 41 minutes.
7. Non-stop flight from San Francisco to Pearl Harbor by 6 P2Y1 planes. Distance 2083 nautical miles in 26 hours and 15 minutes. This flight is the present over-water record for aircraft in formation and was commanded by Lt. Com. Knefler McGinnis.

Two emergency flights were made for the assistance of civilians in distress; one to Galapagos Islands from Canal Zone by 2 P2Y1 planes, a distance of 900 nautical miles over the open sea, and another to the Caribbean Sea from Canal Zone by 2 P2Y1 planes to search for missing lifeboats, flying about 25 hours.

Naval and Marine Corps aircraft participated in the following major aeronautical events: National Air Races, Los Angeles; National Encampment of Veterans of Foreign Wars, Milwaukee; National Charity Air Pageant, Long Island, New York; International Air Races, Chicago, and All American Air Races, Miami, Fla.

On Nov. 21, 1933, Lt. Com. T. G. W. Settle, U. S. N., accompanied by Major C. L. Fordney, U. S. M. C. R., made a stratosphere flight in a balloon to an altitude of 61,237 feet, setting the world's altitude record.

Fleet aircraft have participated to the fullest extent in all fleet problems and exercises, operating under all conditions encountered as an integral arm of the fleet.

UNITED STATES FLEET

The various units of the United States Fleet carried out their normal operations, conducting during the year 20 fleet exercises. Each of these exercises has ben fitted into the general scheme of tactical development. The deficiencies brought to light by each have been analyzed and methods devised to eliminate them in the next.

ASIATIC FLEET AND CONDITIONS IN CHINA

The ships of the Asiatic Fleet performed their normal functions, being employed on the Yangtze River, in northern and southern Chinese seaports, and making training cruises to Japan, French Indo-China, the southern Philippines, and other adjacent lands and countries.

The Commander-in-Chief represented the Navy at the funeral obsequies of the late Admiral Togo, I.J.N., in Japan on June 5, 1934.

The gunboat *Fulton* was nearly destroyed by fire at sea off Hongkong on March 14, 1934, but no lives were lost due to the prompt assistance rendered by the two British destroyers *Wishart* and *Whitshed.*

China continues in a state of disruption with internecine strife and communist-bandit activities now engaging the wholesale attention of the Government forces. Banditry and communism continue rife along the Yangtze Valley where our Yangtze Patrol and armed guards of Marines afford protection to American citizens and their interests. The spread of communism along the South China littoral has frequently necessitated, upon consular request, the presence of gunboats or destroyers at South China ports for varying periods. Their timely presence has had a very steadying effect in these and other seaports.

Piracy, with attacks on foreign coastwise vessels, remains widespread in the Canton area where our South China Patrol operates. On June 18, a destroyer and a minesweeper were ordered to assist British naval vessels in aiding a pirated British ship off the mouth of the Yellow River and assist in rescuing captured foreign passengers.

The Fourth Marines, a regiment with a strength of 94 officers and 1,668 enlisted men on June 30, 1934, has been stationed at Shanghai as in previous years.

The Legation Guard of marines at Peiping was maintained during the fiscal year as in former years, with a strength of 29 officers and 522 enlisted men on June 30, 1934.

The First Marine Brigade, with a strength of 46 officers and 714 enlisted men on June 30, 1934, remained stationed in the Republic of Haiti throughout the fiscal year. There were no military operations, a tranquil condition having prevailed during the period, with the troops performing garrison duty only.

CUBA

Throughout the fiscal year the troubled situation in Cuba has been a matter of considerable concern and has required the presence of naval vessels in Cuban ports continuously since August, 1933. The first indication of trouble resulted in 3 destroyers being sent to Havana Harbor on Aug. 14. When further and more serious political disturbances developed early in September, the Commander, Special Service Squadron, Rear Admiral C. S. Freeman, U.S.N., proceeded to Havana in the cruiser *Richmond* on Sept. 7, and has been continuously in Cuban or adjacent waters throughout the fiscal year. Other vessels of the Special Service Squadron which was temporarily increased by destroyers, 1 battleship, 4 Coast Guard cutters, and 8 Coast Guard destroyers have stood by in Cuban waters and vicinity. The battleship *Wyoming* with a battalion of Marines stood by in Guantanamo Bay. However, no occasion to land on Cuban territory nor to employ force arose during the year. Commencing early in November, 1933, with the restoration of some degree of stability in the affairs of the island, withdrawal of the extra forces was begun.

At the close of the fiscal year the Special Service Squadron was re-enforced with only one light cruiser and two destroyers. One Marine battalion remained in Guantanamo Bay and another battalion was based on a Florida port.

FLEET TRAINING

Tactics.—Periodical tactical exercises were held throughout the fiscal year by all units of the Fleet. The Asiatic Fleet has conducted such tactical exercises as its employment in China has permitted. The year's tactical training of the U. S. Fleet culminated in Fleet Problem XV, comprising operations on both coasts.

Gunnery Exercises.—The combatant vessels and aircraft in active commission conducted their scheduled gunnery exercises and practices. The results of the practices for all types were satisfactory and considerable progress was made in the technique of gunnery. Gunnery schools were held and continued to demonstrate their usefulness. Small-arms firing continued on a reduced scale due to economy but a high standard of excellence was maintained.

Engineering Performances. — The results of operating under the simplified rules have been very satisfactory. The operating allowances have been so adjusted as to promote a real economy of operation. The engineering performance records have furnished valuable logistic data and information of value to the material bureaus.

NAVAL INTELLIGENCE

The Office of Naval Intelligence has continued the work of collecting, evaluating, and disseminating information of value to the Navy, both foreign and domestic. The public, through the press, news reels, and photographers has continued to be supplied with information concerning the Navy and its activities.

The work of collecting and classifying the World War records continues. The library has augmented its collection by a careful choice of additional books, bringing the total collection to 80,510. Extensive research is constantly in progress.

The Office of Naval Attaché at Santiago, Chile, was closed as of June 30, 1934, and the Assistant Attaché for Air in Rome was ordered home without relief due to lack of funds.

The Naval Attaché office at Moscow was established in March, 1934 but due to lack of funds is only half manned. The staff there at present may have to be recalled in the fall for the same reason.

The Naval Mission in Brazil continues there with success and satisfaction to the Brazilian Government.

NAVAL COMMUNICATIONS

There are 36 naval radio traffic stations and 43 radio direction finder stations in active commission. The radio station at Port au Prince was decommissioned on June 30, 1934, and will shortly be turned over to the Haitian Government.

The total traffic handled over the naval shore radio system during the fiscal year amounted to 128,809,886 words of which 49 per cent was traffic for other government departments. The total estimated saving to the government was $3,311,155.

At the begining of the fiscal year the communication personnel on shore duty was reduced about 12½ per cent and maintenance allowance about 40 per cent. However, the shore stations performed all their required duties sending out some 30,000 direction finder bearings to naval vessels and some 200,000 bearings to other craft.

A total of 16,060 broadcasts of naval time signals was sent out from Navy shore stations during the fiscal year.

Weather bulletins are broadcast daily from 26 Naval radio stations and hydrographic bulletins from 20 stations, numerous frequencies being employed. Assistance is also rendered the Weather Bureau in collecting information.

A new American edition of the *International Code of Signals*, compiled and edited by the Division of Naval Communications became effective on Jan. 1, 1934. It is distributed by the U. S. Hydographic Office in two volumes.

IX. DEFENSE AND ARMAMENT

NAVAL CONSTRUCTION AND EQUIPMENT

By Peter Bain

Naval Construction Consultant

ACTIVITIES IN PEACETIME

Failure of the Disarmament Conference at Geneva together with a growing apprehension as to what may happen when the Washington Treaty expires Dec. 31, 1936, conspired both nationally and internationally to mark 1934 somewhat of a banner year as regards peacetime naval construction and equipment activity—manifest and projected—and as regards state policies expressed and diplomatic efforts expended. Signatories to the London Naval Treaty are United States, Great Britain, and Japan, which together with France and Italy, are signatories to the Washington Treaty. Towards the end of January it became abundantly obvious that both the United States and Great Britain had reached a condition of disgusted weariness over the whole disarmament question. In an article in *The New York Times* by Representative Vinson, chairman of the House Naval Affairs Committee, the claim was made that disarmament by example was a dismal failure and that small navies jeopardized peace. The British viewpoint concurrently expressed by Winston Churchill so aptly coincided with the Vinson concept that the article as a whole might just as well have been written about Great Britain as about the United States. Mr. Churchill declared that his country must now build up its fleet, increase its navy regardless of other nations by denouncing the existing Washington and London Naval Treaties, citing as the basis for his argument the circumstance that a new situation had been created by ‘‘rubbing this sore of a disarmament conference until it had become a cancer.’’ Notwithstanding that existing naval treaties have still about two years to run, the circumstance that Japan had informally indicated her intention to end the 5-5-3 ratio basis now in force between Great Britain, the United States, and herself respectively, led to the one inference that the future relationships of the various sea powers were in process of being so shaped by fast moving events as to determine the outcome of the international naval conference scheduled for 1935 even before it can convene. Among the fast moving events it may be noted that the United States and Japan were embarking on their biggest naval construction programs since the World War, that France and Italy were feverishly competing in the Mediterranean, whilst Great Britain was striving mightily to maintain its relative position in Europe as well as overseas.

NATIONAL ATTITUDES INVOLVED

The United States and Great Britain are each unalterably opposed to and will combat all insistence by Japan for greater proportionate naval strength than that allowed in Washington and London. The British viewpoint is that Japan’s demand for equality recognition is directly attributable to bungling and cowardice at Geneva two years before. British antagonism to the idea of naval parity for Japan and, incidentally, to the reemergence of Germany as a sea power, does not apply to the present naval aspirations of the United States. On the contrary, Washington’s apparent determination to build up to full treaty strength has been hailed in London and throughout the Empire generally as a good example to be followed. In a report prepared by William T. Stone with the aid of the research staff of the Foreign Policy Association, one phase at least of this country’s opposition to equality of rating as sought by Japan was dealt with, assertion being made that if both countries maintain their present policies unchanged, agreement in 1935 would be extremely doubtful. It was further asserted that the main problems were those created by the Japanese-sponsored State of Manchukuo and the non-recognition policy adopted by the

United States and the League of Nations. Japan's refusal to discuss Manchuria and insistence of the United States on inclusion of Manchukuo would almost surely lead to complete deadlock.

JAPAN'S POWER IN THE PACIFIC

It is recognized by the United States and Great Britain that Japan can wreck the 1935 naval conference. They fear, too, that she will wreck it by adopting the same tactics that Germany employed at Geneva relative to land and air forces. In that event, the United States and Great Britain will be obliged to assume the French rôle of insistence on security against what would constitute Japanese preponderance on the Pacific, for equality of fleets would mean just such preponderance along the Asiatic coast when America and British requirements in other parts of the world are reckoned. Equality, it would appear, is what Japan definitely demands, at least one would so judge from her naval conference program as printed unofficially, June 17, 1934, in a Tokyo newspaper. Included in the program were the following: Abolition of the ratio principle and adoption of that of limitation by aggregate tonnage; reduction of United States and British tonnage to the Japanese level; guarantee of the right of each nation to determine its own defensive needs, and adoption of the principle of equality in armaments. Will Japan back down or can she be bought off by political concessions that the other two countries, especially the United States, would be willing to make? Searching the record for answers to these questions discloses a distinctly negative attitude; thus, since she separated Manchuria from China, Japan has shown little or no inclination to back down on anything for anybody. She did not back down in the 1934 economic war with Great Britain but stuck to her program despite quota impositions which excluded millions of yards of Japanese textiles from British colonies. In a special cable to *The New York Times*, June 18, 1934, the statement was made that, if Japan was putting up, merely for trading purposes, naval demands that neither the United States nor Great Britain will consider, it might be assumed that she would ask for political concessions among which would be recognition of Manchukuo by both countries, a free hand in China, and modification of the American immigration law through which Japanese are excluded. If political concessions fail should they be sought or offered and Japan will not modify her naval demands, it may well be that a naval construction, equipment, and armament race will develop on the Pacific. In addition to sea and air fleet reinforcement, the United States may then deem it necessary to fortify both Guam and the Aleutian Islands. It has been suggested also as a means of reducing individual competitive cost that this country and Great Britain might share on a fifty-fifty basis by a naval alliance through which their combined fleets would sufficiently outstrip that of Japan, thereby eliminating any need for either to be equipped to deal with an emergency single-handed.

JAPAN'S DENUNCIATION OF WASHINGTON TREATY

Despite the fact that for three or more months representatives of all three powers had been conferring on the subject of naval ratios by way of preliminary preparation for the general conference in 1935, no measure of progress was registered; in other words, all three powers held tenaciously to the positions outlined generally in the foregoing. Climaxing the matter, as it were, on Dec. 29, Japan formally denounced the Washington Naval Treaty of 1922 by filing written notice with our State Department that the pact was to terminate on Dec. 31, 1936. Secretary Hull, following notification of Japan's action to the governments of Great Britain, France, and Italy, the other signatories to the treaty, issued a statement expressing "genuine regret," declaring at the same time that the "existing treaties have safeguarded the rights and promoted the collective interests of all of the signatories." He declared that the United States was ready to enter negotiations for a new agreement whenever a prospect appeared that a mutually satisfactory conclusion could be reached. The United States stands as it did during the preliminary talks already referred to, for equality of security, and this, Secretary Hull made abundantly clear. "The objectives of promoting peace through disarmament and cooperative effort along certain defined lines which existed when the treaties were negotiated are still fundamental," he continued, "among the objectives of the foreign policy of the United States. To this high purpose the people of this country in a spirit of sincere friendship toward all other peoples, will continue unswervingly to devote their own efforts, and earnestly invoke like efforts on the part of others. Experience teaches, that conditions of peace or measures of disarmament cannot be promoted by the doctrine that all nations, regardless of their varying and different defensive needs, shall have equality of armaments."

The interim task of discovering through the normal channels of diplomacy the time and method for making another attempt to reach an agreement with Japan has been left with Great Britain. A satisfactory arrangement with Japan is considered vital by both Britons and ourselves, due possibly to a fear that Japan's denunciation of the treaties may be merely the first move in a program for achieving complete dominance of the Western Pacific and absolute control of all China. This, of course, would mean the end of the already violated Nine-power Treaty. Article XXIII of the Washington Treaty stipulates among other matters that "within one year of the date on which a notice of termination by any power has taken effect, all the contracting powers shall meet in conference." The date, place, and outcome of this conference belong to the future; yet it must take place, if at all, some considerable time before Dec. 29, 1935. Where the meeting place will be is not yet decided, although Brussels appears most acceptable to the various powers concerned.

NAVY PROGRAM OF THE UNITED STATES

It is not believed that Japan's denunciation of the Washington Naval Treaty will materially affect our new construction and equipment, either operative or as planned. The United States is now building 70 ships, several of every category provided through the Washington and London treaties and two non-treaty gunboats. When this construction is completed within the next 30 months, our Navy will still be short by 78 ships of full treaty privileges in modern vessels. The administration program for taking care of these 78 ships has been planned so that construction will be spread over a period of seven years, all to be laid down in the fiscal years, 1936 to 1939, the last of them to be completed not later than 1942. Type vessels and distribution by fiscal years are as follows: 1936—One 14,500-ton aircraft carrier to replace the *Langley;* two 6-inch gun cruisers to replace the *Milwaukee* and *Omaha;* three 1,850-ton destroyer leaders; 12 destroyers, and six submarines. During each of the fiscal years 1937-8-9, 12 destroyers and six submarines will be laid down. It should perhaps be noted here that the shortage of 78 ships belongs to an over-age replacement plan covered by both treaties.

The years 1934 will go down in history as more than ordinarily notable because of our adoption of a definite policy to build up the Navy to the strength permitted by the treaties of limitation to which we are among the signatories. Most important in this respect was the passage by Congress and the approval by the President of the Trammell-Vinson Act which established the strength of the Navy and authorized the construction of ships and aircraft such as would bring us to the prescribed treaty limit, together with replacements of vessels as they became over-age. Equal resolution was expressed by Congress in its appropriation of money for naval upbuilding, and by the Executive in the allocation of funds under the National Industrial Recovery Act and Emergency Employment Act. Altogether, the funds provided permit the completion of vessels previously building, the complete construction of certain others, and the laying down of some 24 ships during the fiscal year, 1935. It may be expected that Congress will continue to appropriate the necessary funds from year to year for the scheduled replacements—78 in all—already noted. During the fiscal year, four heavy cruisers, one aircraft carrier, one destroyer, and two submarines were placed in commission. In the same period, 30 ships of miscellaneous types which included two oilers, one ocean tug, one mine sweeper, one submarine and one gunboat, were placed out of commission. Stricken from the Navy Register were 22 vessels of various types. During the fiscal year, 1935, one battleship will pass from reduced to full complement and one heavy cruiser and seven destroyers will be commissioned.

NEW CONSTRUCTION

On July 1, 46 vessels belonging to various categories were under construction at sundry locations and displaying stages of progress commensurate with their individual dates of keel laying or completion. Of the grand total distributed between navy yards and private shipyards, two were aircraft carriers, three were heavy cruisers, four were light cruisers, four were submarines, 31 were destroyers, and two were gunboats. Of ships under construction on July 1, 1933, the *Ranger,* aircraft carrier No. 4, was completed June 4, 1934; *New Orleans,* heavy cruiser No. 32, April 18, 1934; *Astoria,* heavy cruiser No. 34, June 1, 1934; *Minneapolis,* heavy cruiser No. 36, on June 20, 1934; *San Francisco,* heavy cruiser No. 38, April 23, 1934; *Farragut,* destroyer No. 348, June 18, 1934; *Cachalot,* submarine No. 170, March 1, 1934, and *Cuttlefish,* submarine No. 171, June 8, 1934.

Under authority of the Act of Congress of March 27, 1934, orders were to be placed for construction of two 1850-ton destroyers, twelve 1500-ton destroyers, and six submarines, to replace over-age vessels and all as permitted by the Washington and London Naval Treaties. At least 50 per cent of the vessels were to be constructed in Government navy yards. To arrange for the construction of those scheduled for private yards, the Navy Department under date of June 27, 1934, invited proposals for the building of two 1850-ton destroyers, five 1500-ton destroyers, and three submarines. Bids were opened Aug. 15, and contracts awarded, Aug. 22. Orders were also to be placed for the construction of one 10,000-ton heavy cruiser and three 10,000-ton light cruisers authorized by the Act of Feb. 13, 1929. Two of these vessels were to be built in private shipyards and two in navy yards. Bids were opened for the former on Aug. 15, and the contracts awarded on Aug. 22. The heavy cruiser is the last of 18 vessels of that type permitted to be built by the United States under the terms of the London Treaty but may not be laid down until after Jan. 1, 1935. After placing these contracts, there still remained to be constructed under the program authorized by the Act of Feb. 13, 1929, two light cruisers for which funds have not yet been secured. A transport vessel of the program authorized by the Act of Aug. 29, 1916, remains to be built if so desired and if funds are obtained for same.

The thirteen vessels to be built in navy yards were allocated as follows: —New York, one light cruiser; Philadelphia, one heavy cruiser; Portsmouth, N. H., two submarines; Boston, two 1,500-ton destroyers; Puget Sound, Wash., two 1,500-ton destroyers; Norfolk, Va., three 1,500-ton destroyers; Mare Island, Calif., one 1,500-ton destroyer and one submarine.

AWARDS TO PRIVATE SHIPYARDS

Bids of private shipyards exceeded the amounts paid on the last naval program due to increased cost of materials and higher labor scales. Work on the 24 vessels was expected to be started within a reasonable time as plans were nearly complete when the contracts were placed. Awards were made with an adjustment provision which calls for increased payments if labor and materials advance and for deduction to the government if these recede. It is estimated that this 1934-35 building program will secure, to both private and government yards employment for nearly two years besides aiding the steel industry which has been lagging in recovery. Awards and allocations in all cases were made in accordance with contract plans prepared by the Navy Department, except in the case of the two destroyers awarded to the Bethlehem Shipbuilding Corporation for which designs were prepared by that company. These designs offered several improvements over previous destroyers. It was explained that no contracts were placed with Pacific Coast shipyards because none of them submitted bonds or satisfactory securities as required by law.

Awards to private shipyards were as follows:—one 10,000-ton light cruiser at $11,650,000, to Newport News Shipbuilding & Drydock Company, Newport News, Va.; one 10,000-ton light cruiser at $11,975,000, to New York Shipbuilding Corporation, Camden, N. J.; two destroyer leaders of 1,850-tons at $3,946,000 each, to Federal Shipbuilding & Drydock Company, Kearny, N. J.; two destroyers of 1,500-tons at $3,784,000 each, to Bethlehem Shipbuilding Corporation, Quincy, Mass.; two destroyers of 1,500-tons at $3,430,000 each, to United Shipbuilding & Drydock Company, New York; three submarines about 1,300-tons each at $2,387,000 per unit, to Electric Boat Company, Groton, Conn.

Towards the year end, naval shipbuilding in private yards was in progress as follows:—Aircraft carriers *Yorktown* and *Enterprise*, at Newport News, Va.; heavy cruisers *Quincy* and *Vincennes*, also destroyers *Phelps, Moffett, Clark*, and *Balch*, at Fore River, Mass.; light cruisers *Savannah* and *Nashville*, also destroyers *Porter, Selfridge, McDougal* and *Winslow*, at Camden, N. J.; destroyers *Dewey, Drayton* and *Lamson*, at Bath, Me.; destroyers *Mahan* and *Cummings* at New York; destroyers *Flusser* and *Reid*, at Kearny, N. J.; submarines *Shark* and *Tarpon*, at Groton, Conn. Contracts for a total of $3,948,144.72 for propelling machinery for five of the six submarines of the 1934 program were awarded on November 17, as follows: The Winton Engine Corporation of Cleveland will furnish for $2,142,764.72 the machinery for submarines 176-177-178 being built by the Electric Boat Company, Groton, Conn. Machinery for submarines 179 and 180, building at the Portsmouth (N. H.) Navy Yard, will be furnished by Fairbanks, Morse & Co., Chicago, at a contract price of $1,805,380.

Ships under construction in navy yards towards the year end were: submarines *Porpoise* and *Pike* at Portsmouth, N. H.; destroyers *MacDonough, Monaghan, Case* and *Conynghan*, at Boston; light cruiser *Brooklyn, Hull* and *Dale*, destroyers, and gunboat *Erie* at New York; light cruiser *Philadelphia;* also destroyers, *Aylwin, Cassin* and *Shaw* at Philadelphia; destroyers *Tucker* and *Downes*, at Norfolk, Va.; gunboat *Charleston*, at Charleston, S. C.; destroyers *Worden, Cushing* and *Perkins*, at Puget Sound, and destroyers *Smith* and *Preston*, at Mare Island.

MATERIAL CONDITION OF THE FLEET

While the material condition of the fleet was maintained to a reasonably satisfactory degree during the year, this, it is understood, was wholly due to the increase of self-maintenance by the forces afloat. The restricted funds available for repairs and alterations were expended almost entirely for the former, alterations being authorized only in most urgent cases. Many of the alterations, neglected due to lack of funds, are of considerable importance; in a word, their completion would improve the economy, reliability, and military efficiency of the ships concerned. All submarines, besides being in a satisfactory material condition, have been equipped with approved safety and rescue devices. Continued development was registered relative to small high speed diesel engines for power boats, resulting in the decision to install that type in all new power craft and to replace existing gasoline engines with diesels when the former become unfit for further service. Navy standard stockless-type anchors, also hydraulic steering gears and their controls have been the objects of refinements in design and general betterment.

Development of naval aircraft continues to progress in a highly satisfactory manner. The past year witnessed the placing of carrier planes in service, their subsequent performance indicating a marked advance. Additional experimental designs have been developed, and their success is confidently anticipated from the service planes to be built during the fiscal year 1934-35. Design competitions have been held in which the entire aircraft industry of the nation has been circularized. From the many designs submitted to meet the Department's needs, those considered most promising have been selected and experimental contracts entered upon for their further development. The practice results in producing a wealth of design information and ideas, besides placing the contracts in the hands of those best fitted to carry them out successfully.

EQUIPMENT AFLOAT AND ASHORE

On Aug. 11, a floating drydock constructed for the Navy Department, was launched from the shipyard of the Dravo Construction Company, Wilmington, Del. Work on it was completed at the Philadelphia Navy Yard, after which it was towed to San Diego for service at the destroyer base there, replacing a marine railway. In his annual report for the fiscal year ended June 30, 1934, Secretary of the Navy Swanson pointed out that inspection of our navy yards shows a real need for machine tools and appliances. Although $2,100,000 was made available for the purchase of machine tools for navy yards, exclusive of the Washington yard (naval gun factory), through an allocation from the Public Works Administration early in the fiscal year, the amount by no means replaced all obsolete and worn out equipment. With the demand made upon it on account of much current ship construction, plant status in general appears to be far short of what it should be.

BATTLESHIP TONNAGE AND ARMAMENT

The naval high command of the United States does not look with favor on the British suggestion that future battleships be limited to 22,000-tons displacement instead of the maximum of 35,000 tons fixed by the Washington Treaty. According to Admiral William H. Standley, Chief of Naval Operations, the concensus of opinion of naval men here was that there should be no reduction of displacement that might result in a lowering of fighting force efficiency, utility, and effectiveness of the heavier battleships of today. Another British suggestion that the main armament of battleships be limited to a maximum calibre of 14 inches found a more favorable response in American naval circles. The situation today, however, as revealed by Admiral Standley, shows that most of the big guns on battleships of the American and British fleets are not larger than 14 or 15 inches calibre, and that only three battleships in the United States Navy and two in the British Navy mount 16-inch calibre guns. Under treaty provision, replacement of battleships will be permissible in the fiscal year 1937, by which time the oldest of the category will have become obsolete.

NAVAL CONSTRUCTION ABROAD

Great Britain.—For 1934, British naval expenditures were set at $286,143,000, the highest since 1928, according to official estimates published on March 6; indicating that the government was pursuing a policy of building right up to existing treaty limits. Provision was made for laying down four cruisers, nine destroyers, one aircraft carrier, three submarines, several sloops, mine-sweepers, and other auxiliary craft. It was revealed also that the battleship *Barham* had been modernized and that the battleships *Warspite, Ramilies, Royal Oak* and *Malaya*, together with the battle cruiser *Repulse* would likewise be brought up to date under the Washington Treaty. Announcement was made by the Admiralty of the perfecting of a satisfactory appliance for catapulting airplanes from the gun turrets of large ships, and that 21 capital ships and cruisers already had been equipped with the device. The situation at the year end appeared to be that while the United States may be permitted by the treaties to lay down 78 more vessels, Great Britain may start only 44 ships, made up of one airplane carrier of 19,100 tons, eight cruisers of 55,030 tons, 30 destroyers of 51,261 tons, and five submarines of 7,562 tons. According to a special cable to *The New York Times* of June 30, 1934, Great Britain's new battleships to be laid down in 1937 will be radically different from all fighting craft at present afloat. They will have guns of a new type, firing nearly twice as fast as the 15-inch guns now in service, and will be armored and otherwise protected on an entirely novel plan. The ships are being designed to range from 22,000 to 35,000 tons, the final tonnage hingeing on the 1935 naval conference agreements.

Japan.—At the end of 1934, it appeared that Japan was restricted to starting the construction of but one vessel in the interval before treaties expire on Dec. 31, 1936. She had already appropriated for all the units needed to reach treaty strength, but the sinking of the *Miyuki,* a 1,500-ton destroyer, made replacement necessary. The first of a new type of war vessel, the cruiser *Mogami,* was launched at Kure, March 14. A sister ship, the *Mikuma* was launched at Nagasaki, May 31. Both are rated as 8,500-ton light cruisers which belong to a class of six in all, four of which are planned to be completed before the end of 1936. All are designed for a speed of 33 knots on a 625-foot length and a 59½-foot beam. As B-Class cruisers, it is interesting to note that they are only five feet shorter than the A-Class and have but three feet less beam. The main armament consists of fifteen 6.1-inch guns, the absolute limit permitted their class and the latest word in naval artillery design arrayed in five triple turrets. Each vessel's engines will develop 90,000-horse power, or 10,000-horse power less than the A-Class cruisers. Capsizing of the month-old torpedo boat *Tomotsuru* last March drew public attention to a new and secretly designed vessel of a type not limited by naval treaties. A somewhat recent Japanese construction program included an appropriation for sixteen 600-ton torpedo boats, but it was far from being generally known that several of such ''mosquito craft'' were already in commission. Completion of the *Tomotsuru* with her three sisters and the projected building of 16 more emphasizes what will undoubtedly constitute one of the problems if and when the 1935 naval conference meets—limiting of the building of small, light, yet formidable ships not restricted by the Washington and London Treaties. In the matter of treaty-unrestricted class and type craft, Japan cannot be said to have been playing a lone hand. The United States has materially strengthened its Coast Guard fleet, the vessels most recently built being from naval designs and under the auspices of the Navy Department. Great Britain, since 1928, has built some 21 sloops—shallow draft vessels of moderate speed and armed with 4.7-inch guns—also many small combatant ships of other types. Strengthening of auxiliary or ''mosquito'' fleets by the three leading sea powers has for the most part taken place since the Naval Conference in London in 1930. According to report, Japan is planning an entirely new and formidable fighting ship against possible expiration of the Washington Treaty. The Japanese ideal is not that of the monster-type ship such as are the British *Hood* and *Nelson,* but a compact floating fortress more after the style of Germany's ''pocket'' battleships. Thus, an attempt will be made to pack as much speed, cruising radius and armament, into as small and inexpensive a hull as possible. This packing into small space of great power and heavy armament in a comparatively low displacement hull has given rise, because of recent disasters, to a widely expressed view that top-heaviness has become somewhat of a menacing factor.

France.—On March 6, the French naval program of 1934, calling for the expenditure of 913,000,000 francs and the construction of four ships, was approved. It was emphasized that the new craft would replace ships past the age limit. Construction of a 26,000-ton sister ship to the *Dunkerque,* now building, was sanctioned. Also included in the program were two submarines and a destroyer. The projected construction is taken as answer to the 10,000-ton "pocket" cruisers of Germany. The laying down of another vessel—the *Strasbourg*—similar to the *Dunkerque* was, later in the year, deemed expedient because of the understanding that Germany had started work on a third 10,000-ton cruiser of the *Deutschland* type, and also on two armored cruisers. It may be said that France intends to resist to the utmost the allowance of any naval increase to Germany. It is understood, also, that she will refuse to accept parity with Italy in capital ships as stipulated in the Washington Treaty and, instead, will claim an aggregate capital ship tonnage equal to the combined strength of Italy and Germany. Although there was no official statement made, it was well known that France was glad to have Japan denounce the existing treaties. France's naval tonnage at the year end had a 50 per cent margin over that of Italy, except in capital ships, and that margin it is understood she is determined to keep.

Italy.—Italy's answer to intensified naval construction elsewhere was to lay down the keels of two 35,000-ton battleships. They are expected to be ready for duty by 1940. The 70,000 tons of capital ship replacement granted by the Washington Treaty will, therefore, be wholly used up in the two new units. Up to mid-year 1934, Italy had refrained from using its allotted tonnage so as "not to prejudice" the result of the disarmament and coming naval conferences. From an official communiqué it is pointed out that in consequence of naval situations in nearly all countries of the world the Fascist government now considers it opportune to give its marine power that organic composition which appears indispensable in view of the general disagreement over qualitative limitation. April 22 was observed generally as Navy Day, advantage being taken of the circumstance to launch the 7,000-ton cruiser *Emanuele Filiberto* at Leghorn, the 1,800-ton destroyer *Sirocco* at Genoa, and the gunboat *Astore* at Naples.

Soviet Union.—Its view being that the object of a naval conference is to limit naval armaments, the Soviet Union sees no point in being invited or inviting itself to a conference which might put limitations on its own naval development. The Soviet Union, while possessing meantime little in the way of a navy, has a comprehensive naval program drawn up, naval vessels being built in various yards within its borders, although where, how many, and of what type, it is not disclosed.

NAVAL AVIATION

By E. J. King

Rear Admiral, U.S.N.; Chief, Bureau of Aeronautics, Navy Department

DEVELOPMENT AND EXPANSION

Vinson-Trammell Bill.—The most important event of the fiscal year 1934, looking toward the continued operating efficiency and future expansion of naval aviation, was the signing by the President on March 27 of the Vinson-Trammell Naval Bill. This legislation authorized the construction of the Navy to treaty strength in surface ships and the necessary number of aircraft commensurate therewith. The previous aircraft building program, which was enacted in 1926, provided airplanes only for a Navy of the strength existing in that year. Between the years 1926 to 1934, 15 cruisers and the aircraft carrier *Ranger* were commissioned, with no aircraft complement provided under "Increase of the Navy." These ships were supplied with aircraft only by curtailing other authorized activities.

Requirements.—The Navy will require approximately 2,000 airplanes by 1940-1942 in order to properly equip the existing Navy, the six cruisers and two aircraft carriers now building, and the ships to be built under the Treaty Navy Bill, together with necessary tender-based, long-range patrol bombing squadrons, marine corps aircraft, and other activities.

Building Program. — A five- to seven-year aircraft building program has been laid down, and funds to carry out the first year of this program are now available. Upon completion of the first year's program the Navy will have 1,193 airplanes. Funds for the second year's program, 273 airplanes, will be requested in the 1936 budget. The second year of the building program will provide aircraft complements for the carriers *Yorktown* and *Enterprise* and six new cruisers.

Material.—Of primary concern to the Bureau of Aeronautics is the matter of providing material which is reliable, modern, equal or superior to that of foreign powers. This obligation, it is felt, has been met in great measure, during the past year, by the Bureau of Aeronautics. This opinion is upheld by the reports of various committees of the Congress which have inquired exhaustively into the subject.

Types and Speed.—Airplanes of approved types, embodying in their characteristics the latest and most important developments, have been provided in so far as available funds permitted. Of particular importance has been the increase in speed range of the latest types. By the use of the controllable pitch propeller and the various devices for decreasing landing speeds, it has been possible to raise considerably the top speed of new service types while at the same time keeping the landing speed within required limits.

SERVICE

Equipment. — A continuous, progressive and orderly experimental development program has been carried out looking toward the production of satisfactory service aircraft, not only in the matter of airplanes and engines, but also in the related fields of equipment, instruments, armament, radio, basic materials, aerodynamics and ship's installation for carrier launching and arresting, and seaplane launching and recovery devices and apparatus. That this program has continued to meet with success is seen in the increased scope of naval operations utilizing aircraft.

Patrol Squadrons.—For the first time two squadrons of patrol planes accompanied the Fleet from the West Coast to Panama and to Caribbean ports and took part in all Fleet exercises. These two squadrons were joined by three additional patrol squadrons from Coco Solo, C. Z., and remained with the Fleet until the completion of Fleet Problem XV, taking part in all exercises. Due to this demonstration of value as a patrol and striking force, the patrol squadrons are now considered to be an essential part of the U. S. Fleet.

Ferrying.—During the fiscal year 1934 the policy of ferrying new and overhauled aircraft was extended to include practically all deliveries of aircraft to operating units by this means. In this connection, 269 transcontinental flights were made, resulting in a saving to the government of approximately $100,000 in transportation charges, while at the same time permitting personnel to gain valuable experience in extended-flight training. The ferrying program was designed to include delivery over seas as well as over land. In this connection a squadron of new patrol planes was flown non-stop from Norfolk to Coco Solo, a distance of over 2,059 statute miles—the longest formation flight on record at that time. Another incident which clearly exemplifies the high state of efficiency attained in material and in personnel is the flight of a squadron of patrol planes from Norfolk, Va., to Coco Solo, thence to Acapulco, Mex., San Diego, Calif., San Francisco, Calif., and thence to Pearl Harbor, T.H. The last leg of the flight was 2,399 statute miles and was flown non-stop and in formation thus setting up a new world's record.

Maneuver Flights.—It is of interest to note that during the transfer of the Fleet from the west to the east coast, the airplanes of the three carriers, *Saratoga, Lexington,* and *Langley,* alone flew approximately 1,341,500 miles, while engaging in maneuvers and fleet exercises, without a single actual casualty.

U.S.S. Macon.—Operations in the lighter-than-air field included the departure of the U.S.S. *Macon* from Lakehurst to her new base, the U.S. Naval Air Station, Sunnyvale, Calif., in October, 1933. After her arrival on the Pacific Coast she participated in Fleet problems, and in April made a flight to the Atlantic Coast to participate in Fleet Problem XV in the Caribbean area, after which she again returned to Sunnyvale, and continued flights for the purpose of training personnel and testing experimental projects related to lighter-than-airships. Particularly noteworthy in this field has been the progress made in the matter of operating airplanes from airships of the *Macon* type. The Naval Air Station, Lakehurst, N. J., following the departure of the *Macon,* was placed on a reduced status, but is still maintained for the training of personnel and for limited operations using the metalclad airship *ZMC*-2 and the non-rigid airship *K*-1.

Altitude Flights. — A privately sponsored venture during the year resulted in the establishment of a new world's altitude balloon record when Lt. Com. T. G. W. Settle, U.S.N., and Maj. Chester W. Fordney, U.S.M.C.R., ascended into the stratosphere to an altitude of 61,237 feet.

During the fiscal year a total of 208,987 flights in aircraft were made. This number includes 622 by lighter than aircraft.

MAINTENANCE COSTS

The increase of maintenance costs for aviation was due not alone to the advance in prices of gasoline, and practically all aircraft spare parts, but to the operation of larger and more powerful plants. In order to compensate for this increase, and at the same time continue the existing efficiency, steps were taken to standardize on methods of repair work. The operation of the cost accounting system promoted efficiency in all overhaul bases resulting in a substantial reduction in the number of man hours required to overhaul planes and engines. This item alone released 100 enlisted men from overhaul bases to seagoing ships. At the end of the fiscal year the Navy had on hand 936 serviceable airplanes. Sufficient funds were available to provide replacements under the 1926 aircraft (1,000 plane) program.

AIRCRAFT DESIGN

The development of naval aircraft continued in a very satisfactory manner. The past year witnessed the placing in service of carrier planes of marked increase in performance. Additional experimental designs were brought out and their success will be reflected in the service planes produced during the coming year. Design competitions were held in which the entire aircraft trade of the country was circularized. From the many designs submitted, to meet the Bureau's needs, those considered most promising were selected and experimental contracts were entered into for their development. This method has resulted in a wealth of design information and ideas, and places the contracts in the hands of those most competent to develop them.

ENDURANCE TESTS

In the field of service aircraft power plants, the policy previously inaugurated of paralleling the 150-hour type endurance tests of each new engine type by accelerated service tests of 150 hour flight time has been continued. During this period the engine is subjected to all prospective service types of operation. This form of testing permits early discovery and correction of defects.

PERSONNEL

Pilots.—The net increase of pilots during the year was 8 naval aviators of the Navy and 1 naval aviator of the marine corps. There was a net decrease of 31 aviation pilots (enlisted) of the marine corps. As of July 1, 1933, the Naval Aeronautic Organization was short 167 naval aviators, heavier-than-air, of the regular Navy.

Officers and Men.—A recapitulation at the close of the fiscal year 1934 of personnel on duty in connection with naval aviation activities follows:

NAVY

	Officers	Enlisted Men	Total
Pilots	834	306	1,140
Student pilots	107	0	107
Observers	5	0	5
Flight orders	2	1,572	1,574
Non-flyers	489	10,095	10,584
Total	1,437	11,973	13,410

MARINE CORPS

	Officers	Enlisted Men	Total
Pilots	104	34	138
Student pilots	8	0	8
Flight orders	5	157	162
Non-flyers	11	781	792
Total	128	972	1,100

Training.—The aviation training course for midshipmen at the U. S. Naval Academy includes theoretical instruction in aeronautical subjects and practical instruction in aerial gunnery and navigation in flight.

The aviation training of the inactive personnel of the Naval and Marine Corps Reserve was performed on a reduced basis due to drastic reduction in training funds, and the ground training was accomplished largely at voluntary drills. A high state of morale was evidenced, however, in the manner in which the work was carried out under adverse conditions. A total of 15,937 hours pilot time was flown up to April 30, with no serious accidents. No funds were available for the training of reserve students during the year.

SPEED, RANGE AND STRIKING POWER

Seaplanes. — Constant effort was made to improve the characteristics of naval aircraft, particularly in regard to speed, range, and striking power. Future plans involve the service tests of larger seaplanes of the long range patrol bombing type with an increase of range, bomb loads, and speed.

Scout Planes. — Development is underway looking toward the increase of the striking power of the carrier-based scouting class airplanes by including arrangements for dropping heavy bombs in diving attack.

BUREAU RECOMMENDATIONS

The Chief of Bureau of Aeronautics has recommended to the Secretary of the Navy: continued improvement of types through a balanced airplane, engine, accessory and material program; modernization of existing aircraft carriers, and improvement of airplane handling facilities on all classes of ships carrying aircraft; provision of an adequate number of suitable tenders for patrol class airplanes; provision for the necessary increases and additions at shore stations as required by the increase in numbers of operating aircraft, and in line with the Departmental shore development program; provision of required increase in personnel; continued development of rigid airships, and the development of tactical and strategic employment of rigid airships as units of the Fleet; construction of one rigid airship, *ZRS*, to replace the U.S.S. *Akron* and one rigid airship, *ZRN*, to replace the *Los Angeles;* obtaining of mooring facilities for airships at Panama and improved mooring facilities in northwestern United States; examination and consideration of the employment and the procurement of non-rigid airships for naval purposes.

In addition, the Chief of Bureau of Aeronautics recommended the provision of aircraft in accordance with approved type complements in sufficient numbers by (a) replacement of obsolescent airplanes and those lost by crashes, (b) an increase in airplanes distributed over a period of five to seven years to make the naval aircraft strength commensurate with the Treaty Navy (estimated total, 1910-2150 airplanes) as authorized by the Congress.

NAVAL EDUCATION

By Carroll Storrs Alden

Professor, United States Naval Academy

THE UNITED STATES NAVAL ACADEMY

The graduates from this institution are to-day the only ones given a commission as officers of the line in the Navy. Several graduates by preference have entered the Marine Corps and a few the Supply Corps. Each United States Senator and Representative may have a certain number of midshipmen appointees at the Naval Academy. This number is at present limited to three, but the Secretary of the Navy has recently recommended that it be increased in 1935 to four, and in 1936 to five. Candidates that have been nominated must qualify as to age (not less than 16 and not more than 20 on the April 1 of the year in which they expect to enter), and pass the prescribed mental and physical examinations. The mental requirements for admission and the four-year curriculum may be compared with those of the leading scientific and technical schools. Beginning with 1935, candidates who have satisfactorily completed a year's work in an accredited university, college, or technical school, and further have met the conditions laid down in the courses studied, may be admitted on certificate without other mental examination.

All students in the Naval Academy are designated as midshipmen, officers in a qualified sense in the Navy. Immediately on being sworn in, their pay begins—$65 a month, and 75 cents a day for rations. This with judicious use is sufficient to meet the regular expenses and to provide on graduation an outfit of uniforms required for the commissioned officer. The academic studies in the four-year course are divided among nine departments, Seamanship and Navigation, Ordnance and Gunnery, Marine Engineering (including also mechanical drawing and naval construction), Electrical Engineering (including also chemistry and physics), Mathematics, English and History, Languages, Economics and Government, and Hygiene. The first four departments mentioned, being distinctly professional, include both the theoretical and the practical in their instruction.

Certain drills form a part of the daily routine during the academic year, and drills of a widely varied nature constitute the chief activities in the summer program. The midshipman in his first summer spent at the Naval Academy, is taught infantry drill, rowing, swimming, and firing on the rifle range. In his third summer, also at the Naval Academy, he devotes himself to aviation, especially to the airplane; in addition to the ground work instruction he spends about ten hours in flight, and has charge of almost everything except the handling of the controls. In his second and fourth summers, spent away from the Academy, he experiences real sea life in the summer practice cruise. The battleships assigned for this purpose in 1934 were the *Arkansas* and *Wyoming*, and the foreign ports visited were Plymouth, Villefranche, Naples, and Gibraltar.

In addition to the nine academic departments mentioned are the Executive and the Physical Training Departments. The former has charge of infantry drills and seeks to inculcate the fundamental ideas of leadership and the exercise of command, while the latter teaches swimming, correct posture, symmetrical physical development, besides directing athletic sports. The faculty of the Naval Academy is composed of officers drawn from the fleet and detailed for two or three years as administrative officers or instructors, and of civilian instructors, who have a fair degree of permanency. Public lecture courses bring university professors and others distinguished in history, economics, and government to address the midshipmen. Scholastic standards at the Naval Academy are high, but above all else the Academy is a school of leadership. The aim is to develop military and personal character, to train midshipmen to undertake whatever task is assigned, and to do it intelligently, cheerfully, and well. All midshipmen on graduation are now awarded the degree of Bachelor of Science.

GRADUATE INSTRUCTION AT THE UNIVERSITIES

Education is completed only in its first phase when graduation from the Naval Academy brings a degree and the commission as ensign. There are examinations to be passed before each promotion, and schools to be attended, as far as is practicable at regular intervals. Two years after graduation ensigns interested in aviation and qualified physically for this go to Pensacola and take an eleven-months course for pilots. Also after the first two years of sea duty, volunteers being called for, officers are selected as assistant naval constructors (sent to Massachusetts Institute of Technology for three years), as assistant civil engineers (sent to Rensselaer Polytechnic Institute for three years), and as assistant paymasters (sent to the newly established Naval Finance and Supply School for one year). The larger number of officers, after they have completed seven years of sea duty are detailed to the Postgraduate School of the Naval Academy, Annapolis, where they take the General Line Course. This is to prepare officers for duties as heads of departments aboard ship and for general executive duties. The basic course, the same for all in professional subjects, as well as in Economics, American Diplomatic Policy, and International Relations, is supplemented by study in the field in which the officer is majoring: Ordnance Engineering, Aeronautical Engineering, Marine Engineering, Radio Engineering, Communications or Aerology. A limited number continue at the school for a second year of specialization, and a still smaller number are given a third year at various graduate schools of universities or technological schools. Certain ones on duty in the Judge Advocate General's Office, Washington, are designated to take a three-year course in law at George Washington University. A few especially qualified are sent to the Orient for a three-year course in the Japanese language or Chinese. And there are, further, a large number that receive instruction so as to have special skill in handling one or more of the following: submarines (New London, Conn.), torpedos (Newport, R. I.), optical instruments (Navy Yards, Washington, D. C. and Mare Island, Cal.), and gyro compass (Navy Yards, New York, N. Y., and Mare Island, Cal.)

NAVAL WAR COLLEGES

The Naval War College at Newport instructs a junior class, composed of lieutenants and lieutenant commanders, in the minor operations of war, and a senior class, composed of commanders, captains, and rear admirals, ''in handling and maintaining large fleets over extended theatres of war and in fleet engagements.'' The latter course ''embraces a study of strategy, tactics, logistics, command policy, and international law.'' A few army and marine officers each year are enrolled in the classes at the Naval War College at Newport, and a few naval and marine officers at the Army War College at Washington, D. C.

Also there are the Naval War College correspondence courses, offered to the officers in the fleet and at shore stations for instruction in War College methods.

INSTRUCTION OF ENLISTED MEN

Training of recruits has during 1934 been limited to the naval training stations at Hampton Roads, Va., and San Diego, Cal. The initial course for all extends over twelve weeks and deals with the following: (a) personal cleanliness, (b) care of clothing, (c) infantry drill, (d) rowing, (e) swimming, and (f) small arms. Upon its completion, a certain number who have shown especial aptitude are selected for the service schools to receive training as will be indicated.

Others are sent aboard ship where their training continues for four weeks; they are then advanced from the rating apprentice seaman to seaman second class or fireman third class.

There are three classes of service schools. ''Class A Schools'' provide elementary instruction to recruits that will make them immediately useful and give them the groundwork necessary for the lowest petty officer ratings. The length of courses is from 16 to 20 weeks. One group is studying for ratings such as electrician's mate, gunner's mate, torpedo man, etc.; another for ratings as radioman, quartermaster, yeoman, etc., and still another for ratings as machinist's mate, blacksmith, aviation carpenter's mate, etc. ''Class B Schools'' supplement the training afloat by giving the men advanced instruction ashore. Courses, from 10 to 40 weeks' duration, are in torpedo, gyro compass, cooking, stenography, electricial interior communication, radio, fire control, etc. ''Class C Schools'' give advanced training for particular duty assignments in subjects not normally a part of shipboard instruction. Courses, from 12 to 35 weeks' duration, are for the following groups: radio material, deep sea diver, pharmacist's mate and hospital apprentice, aerographer, aviation mechanic, submarine, etc. Also included in this division is the Naval Academy Preparatory School, at the Naval Training Station, Norfolk, Va. The law provides that 100 enlisted men, if they can qualify in all particulars, shall be appointed midshipmen in the Naval Academy. As they must pass the same examinations as other candidates, this school gives them a needed opportunity for preparation.

NAVAL RESERVE OFFICERS' TRAINING CORPS

Reserve officers training corps units have been established at Harvard, Yale, Northwestern, Georgia School of Technology, University of California, and University of Washington, and a maximum of 200 undergraduates may be enrolled at each institution. The naval course is elective, and credits count for the bachelor's degree. Graduates who successfully complete it are eligible for commissions in the Naval Reserve.

ADVANCEMENT

Whether the consideration is of the education of the midshipman, the officer, or of the enlisted man, it is never finished, and his advancement is dependent in no small degree on his ability to see what lies beyond and to master that. Related to this is the principle of selection, which extends almost throughout the entire organization. Of candidates for appointment as midshipmen in the Naval Academy, only about one in three who take the entrance examinations succeeds in passing, and then the physical examination takes its toll, one or more out of twelve being rejected. In June, 1934, 463 midshipmen were graduated, this out of a class that at entrance numbered (with additions from other classes) 662—that is, about seven were graduated out of every ten that entered; of these 60 were found physically disqualified (chiefly because of defective vision) and others dropped out for various reasons, so that only 332 were commissioned ensigns in the line, and 25 second lieutenants in the Marine Corps, which is a little over one out of two of all those that originally entered. Major and minor hazards, not least the selection boards, will threaten or spur on the 332 ensigns as they advance to the rank of lieutenant (junior grade), lieutenant, and lieutenant commander. Those who survive selection, natural and legislative, till they reach the rank of captain or rear admiral must show unusual ability, fitness, and vigor. Among the enlisted men, selection begins right with the recruiting office. So many young men have in the present period applied for enlistment that only one in 20 can be accepted. The quality of those now being chosen is shown by reports from the training stations: at Norfolk 44% of the recruits are high school graduates or have gone beyond this in education; at San Diego 53% can similiarly qualify.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

SERVICE SOCIETIES

- American Legion, National Headquarters, 777 N. Meridian Street, Indianapolis, Ind.
- American Remount Assn., 810 18th Street, N. W., Washington, D. C.
- Army Ordnance Assn., Mills Bldg., 17th St. and Pennsylvania Ave., Washington, D. C.
- Assn. of Military Surgeons of the United States, Army Medical Museum, Washington, D. C.
- Chemical Welfare Service, Edgewood Arsenal, Maryland.
- Military Training Camps Assn., 19 W. 44th Street, New York City.
- Navy League of the United States, 1749 E Street N. W., Washington, D. C.
- Quartermasters' Assn. of the United States, 923 15th Street, N. W., Washington, D. C.
- Reserve Officers Assn. of the United States, 1653 Pennsylvania Ave., N. W., Washington, D. C.
- Society of American Military Engineers, 808 Mills Bldg., Washington, D. C.
- Society of Naval Architects & Marine Engineers, 29 W. 39th Street, New York City.
- U. S. Cavalry Assn., 1624 H Street N. W., Washington, D. C.
- U. S. Field Artillery Assn., 1624 H Street N. W., Washington, D. C.
- U. S. Infantry Assn., 1115 17th Street N. W., Washington, D. C.
- United States Naval Institute, Annapolis, Md.

PATRIOTIC AND HEREDITARY

- Colonial Dames of America, 421 E. 61st Street, New York City.
- Daughters of 1812 U. S. National Society, 108 Iona Ave., Narberth, Pa.
- General Organization, Sons of Confederate Veterans, 609 Law Bldg., Richmond, Va.
- Founders and Patriots of America, Lexington Ave. and 48th St., New York City.
- National Society of the Daughters of the American Revolution, Memorial Continental Hall, Washington, D. C.
- Military Order of Foreign Wars of the U. S., 140 Nassau Street, New York City.
- Military Order of the Loyal Legion, 140 Nassau Street, N. Y. C.
- Military Order of the World War, 30 West 44th St., New York City.
- National Security League, 45 West 45th Street, New York City.
- National Society of the Sons of the American Revolution, 1227 16th St., N. W., Washington, D. C.
- Naval and Military Order, Spanish-American War Veterans, 184 State House, Boston, Mass.
- Pilgrim Society, Pilgrim Hall, Court Street, Plymouth, Mass.
- Society of the Cincinnati, 136 W. Lanvale Street, Baltimore, Md.
- Society of Colonial Wars, 122 E. 58th Street, New York City.
- Society of Mayflower Descendants, 120 E. 71st Street, New York City.
- Sons of Union Veterans of the Civil War, Reading, Pa.
- United Confederate Veterans, 8234 Sycamore St., New Orleans, La.

PART FOUR

ECONOMICS AND BUSINESS

DIVISION X

BUSINESS AND FINANCE

ECONOMIC AND BUSINESS CONDITIONS

By S. S. Huebner

Professor, University of Pennsylvania

MODERATE IMPROVEMENT IN MIXED CONDITIONS

The year, 1933, gave distinct evidence that a turn for the better had occurred, as compared with the progressive recession in industry, commerce, employment, and commodity and security prices during the years, 1930-32. The business improvement as a whole could be characterized as only slightly better. The same must also be said for 1934. Business conditions at the close of the year were highly mixed. Certain indices like retail business and automobile manufacturing showed decided improvement whereas others like the railroad and heavier industries retained an apparently unchanged position as compared with 1933, or showed only a slight improvement. As explained by the Alexander Hamilton Institute (Dec. 29, 1934) the expansion of 1933 "was greater than that warranted by the extent of the fundamental adjustment prerequisite to full recovery. The excessive activity during the period necessitated a corrective movement and the last half of 1933 was featured by a sharp reaction. For the year as a whole, however, the volume of business showed a substantial increase over the 1932 level although it failed by a wide margin to attain the pre-depression level. . . . The recovery movement was again resumed at the beginning of 1934, but, as in 1933, the expansion was overdone and business went through another period of curtailment last summer. The excess was sufficiently corrected at that time, however, to permit a moderate upturn during the final quarter of 1934. When the final returns are available they promise to show that the volume of business for 1934 made a much smaller gain over 1933 than the 1933 volume made over 1932. In fact, they promise to show that business in 1934 made little further headway toward full recovery and that consequently a large amount of ground still remains to be covered before the pre-depression rate of activity is attained."

As will be explained later, agriculture showed a large increase in the price of its products, although the output in volume was the lowest in years. Moreover, with respect to the price rise there must be taken into account the corrective factor of the devalued dollar. Most basic manufacturing and mining commodities were also quoted at the end of the year at prices substantially the same as those prevailing at the close of 1933. Building award figures remain substantially at the 1933 level, and this only because of heavy Government awards and Government aid. Pig iron production showed a moderate increase for the year as contrasted with 1933, although the total is still far behind the record of previous years. Commodity index numbers, as well as employment and payroll indices, as explained later, also showed a slight improvement as compared with the record of 1933. The business failure record for 1934, however, indicated a remarkable improvement, being in fact the best record for any year within the past decade, and giving unmistakable evidence that the drastic process of liquidation in this severe depression has substantially run its course. The heavier industries also gave a poor response to the general improvement in retail business. This is particularly true of the railroads where traffic and earning changes were negligible during the year. Exports and imports for the year also showed a slight improvement over 1933, but fell far short of the high records of previous years.

FINANCIAL CONDITIONS

New capital financing still continued at the close of 1934 in a state of almost complete stagnation. Dividend distributions of corporations increased somewhat, it is true, during the last half of the year, but this was prompted in many instances by a desire to disgorge surplus for taxation purposes, and was not necessarily indicative of improved net earnings. Bank clearing for 1934, amounted to only $261,000,000,000 as compared with $241,000,000,000 for 1933, or an increase of only 8.3 per cent. At the close of the year bank clearings had improved, however, to an extent exceeding those at the close of 1933 by 17.8 per cent. As compared with 1933, the volume of share transactions on the New York Stock Exchange during 1934 was smaller by 331,000,000 shares, or over 50 per cent, and on the New York Curb Market by 41,000,000 shares or approximately 40 per cent.

SECURITY PRICES

Security prices showed a declining tendency during 1934 as compared with the level reached in 1933. This is true of all the major group of securities. Railroad shares (using the Babson averages) appreciated from an average price of 17.71 for June, 1932 to an average of 56.53 for July, 1933, or an increase of nearly 220 per cent. During the same period industrial stocks showed an increase from 50.88 to 108.67 or more than a doubling. Mining stocks likewise appreciated from the June, 1932, average of 4.6 to 19.8 in September of 1933, or an increase of nearly 330 per cent. Most of the preceding increases occurred in 1933, particularly following March, and although a substantial and natural recession occurred following July, prices at the end of the year still showed a substantial advance for nearly all groups of stocks, with public utilities and bank stocks, however, remaining conspicuous laggards.

BANKING CONDITIONS

Banking conditions during 1934 remained unfortunately very unsatisfactory, and bank shares as a group have remained at substantially the lowest level of the depression. However, bank failures have decreased greatly in all sections of the country as contrasted with the periods just before and after the March, 1933, bank moratorium. Despite this improvement in bank failures, however, operations of the banks have continued highly unprofitable. Money rates have remained unduly low throughout the year, call rates in New York City never exceeding 1 per cent. Monthly averages for time loans also ranged throughout the year between 1 and ¾ of 1 per cent, with the lowest monthly averages prevailing during the last half of the year, the monthly average remaining consistently at ¾ of 1 per cent.

AGRICULTURAL PRICES

Most of the indices of trade will be referred to under the headings of "Leading Indices of Trade" and "Index Numbers." Brief reference, however, may be made to business conditions prevailing in certain of the leading groups of industries not usually represented in regularly printed and commonly used index tables. Thus with respect to agriculture a substantial increase has occurred in price during the year in conjunction with a notable decline in volume. The price for wheat (No. 2 red winter, Chicago) increased from December, 1933, to December, 1934, from 84½ cts. to $1.03¼, but the production for the year showed a decline of over 75 million bushels. The price of corn (No. 2 mixed, Chicago) during the same period rose from 48⅜ cts. to 96⅝ cts. But this doubling in price is probably largely attributable to the enormous slump in production from 2,343,883,000 bushels in 1933 to only 1,607,108,000 in 1934. Cotton increased in price from 9.93 cts. to 12.77 cts. but this is largely due to Government pegging and to the extraordinary decline in volume of from 13,047,000 bales in 1933 to 9,195,000 bales in 1934. The price of cattle (choice native steers, Chicago) also shows a substantial rise, namely from $5.05 per 100 lbs. to $7.45, and the price of hogs from $3.25 to $5.90. Here also a deliberate governmental policy of curtailment in production has been consistently pursued during the year.

Concerning estimates of farm income, press accounts contained the following at the close of the year: “On the basis of the final 1934 crop estimates made by the Department of Agriculture, the Standard Statistics Co. now forecasts gross farm income at $8,056,000,000, an increase of 28 per cent as compared with $6,256,000,000 realized from crops and livestock raised in 1933. Of the total income, $7,356,000,000 is estimated as the return from marketings and the value of staples consumed on the farms. The remaining $700,000,000 is accounted for by benefit payments and drought relief disbursements. It had previously been expected that $1,000,000,000 would be distributed, but no more than 55 per cent to 60 per cent of the $525,000,000 appropriated for drought relief is believed to have been actually disbursed. Federal subsidies represented a much smaller proportion of 1934 farm income than has been generally believed. The $700,000,000 directly distributed by the U. S. Government in 1934 represents only 8.7 per cent of the value of all crops and livestock. The ratio of Federal subsidies to the total farm income will probably be still lower in the current year.”

MANUFACTURING AND MINING

In manufacturing and mining industries, where the output of product is more subject to control than in agriculture, the price changes during the year have been much more moderate. Comparing December of 1934, with the same month of 1933, the following price changes may be selected from the many listed in the *Guaranty Survey:* Bituminous coal (Pittsburgh) from $1.80 a ton in 1933 to $2.15 in 1934; copper (New York) from 7.87½ cts. per lb. to 7.62½ cts.; hides (Chicago) from 10 cts. per lb. to 11 cts.; pig iron (Pittsburgh) from $17.00 a ton to $18.00; steel billets (Pittsburgh) from $26.00 a ton to $27.00; lead (New York) from 4.15 cts. per lb. to 3.60 cts.; petroleum (Oklahoma-Kansas City) $1.02 per bbl. unchanged to $1.02; rosin (Savannah) $3.67½ per 280 lbs. to $4.50; rubber (New York) 8⅝ cts. per lb. to 12⅞ cts.; silk (New York) $1.44½ per lb. to $1.42; sugar (New York) 3.19 cts. per lb. to 2.63 cts.; tin (New York) 53 cts. per lb. to 50.92½ cts.; zinc (St. Louis) 4.50 cts. per lb. to 3.70 cts.; and wool (Boston) 87 cts. per lb. to 68 cts.

RAILROAD EARNINGS

Last year's issue of THE AMERICAN YEAR BOOK (p. 351) explained the unfortunate position of the railroads, pointing out that this important industry, out of all of the nation's pivotal businesses, probably suffered as great reverses as any. Again, for 1934, improvement in this business has been very moderate indeed. Average weekly revenue freight car loadings for the first seven months of the year totalled only 589,969, as compared with 521,205 for the corresponding months of 1933, and with 731,608 and 893,530 for the same months of 1931 and 1930. For October of 1934 (the latest available) the total weekly average of 632,872 compares with 625,679, 640,910 and 651,411 for the months of August, September and October, 1933. Railway gross earnings per mile for October, 1934 (the latest available) stood at $1,224 as compared with $1,223 for October, 1933. Net earnings per mile for October, 1934 stood at only $337 as compared with $378 for October, 1933 and with $406 for the corresponding month in 1932, $421 in 1931, $648 in 1930, $846 in 1929, and $897 in 1928.

BUILDING CONSTRUCTION

In the field of building construction, conditions have shown only a slight turn for the better as compared with the alarming conditions of 1933 and 1932. Last year the F. W. Dodge Corporation's reports for new building contracts awarded for November, 1933 totalled only $162,340,600, whereas for the corresponding month of 1934 (the latest available) the total is reported at only $111,740,800. During the first half of 1934, however, the monthly record was consistently much better than the record for the first half of 1933. For the first 11 months of 1934, the total stands at approximately $1,451,000,000, as compared with $1,048,000,000 for the corresponding period of 1933, $1,270,000,000 for 1932, $2,955,000,000 for 1931, $4,274,000,000 for 1930, and $5,438,000,000 for 1929. The low totals of 1933 and 1934, it should be noted, would probably be even smaller were it not for the artificial aids which have been extended by the Federal Government.

MANUFACTURES

The present situation in other outstanding lines of business endeavor may be indicated by the latest available industrial figures (Index Number of Federal Reserve Board, adjusted for seasonal variations, and with the 1923-25 average=100). This index shows the following for September, 1933, as compared with September, 1934: Manufactures (total) 83 compared with 69; iron and steel 65 as compared with 37; textiles 99 as compared with 64; food products 105 as compared with 120; paper and printing 60 with 65; lumber 36 with 32; transportation equipment, 55 as against 65; leather and products 92 and 87; cement and glass 37 and 50; petroleum refining 158 and 152; coke 91 and 73; Rubber tires and tubes 103 and 79; tobacco products 115 and 125; minerals (total) 87 and 82. The foregoing list fairly indicates the variations in the progress of this year as compared with 1933. It is difficult to detect any real improvement, some activities having forged ahead moderately during the year, but about an equal number having declined.

NEW CAPITAL FINANCING

New capital financing for 1934 (first 11 months) totals only $143,396,099 as compared with $145,117,000 for the corresponding period of 1933, $300,088,000 for 1932, $1,696,000,000 for 1931, and $4,764,000,000 for 1930. The 1934 record, in other words, is about the same as that of 1933, also an extraordinarily poor year, with a record of less than half that of the preceding year. The record of the last two years has been one of utter stagnation, and the annual total was only about 2 per cent of the new capital financing during 1929, when an all-time high record was established.

FOREIGN TRADE

Exports of merchandise during the first half of 1934 totalled $1,036,262,000 as compared with $669,329,000 for the same period of 1933, $840,012,000 during 1932, $1,315,962,000 in 1931, $2,075,718,000 in 1930, and $2,623,088,000 in 1929. In the case of imports of merchandise there has also been a substantial increase, the first six months total being $863,329,000 as compared with $592,092,000 for the corresponding period of 1933, with $746,786,000 for 1932, $1,107,151,000 for 1931, $1,735,985,000 for 1930, and $2,286,375,000 for 1929. For the second half of 1934 (first four months for which figures are available) the volume of exports as

CORPORATE FINANCING

(*Survey of Current Business*)

	1933		1934	
	Capital	Refunding	Capital	Refunding
January	$22,157,000	$42,360,000	$ 5,983,000	$ 1,500,000
February	1,314,000	36,241,000	13,058,000	2,308,000
March	3,170,000	2,248,000	13,770,000	12,569,000
April	17,335,000	18,207,000	28,241,000	59,283,000
May	3,584,000	12,050,000	28,823,000	2,958,000
June	12,082,000	48,296,000	9,420,000	23,747,000
July	52,760,000	43,061,000	20,279,000	125,500,000
August	14,050,000	....	8,019,000	10,000,000
September	8,911,000	17,854,000	4,387,000	10,000,000
October	3,109,000	....	390,000	31,000,000
November	6,511,000	....	....	....
December	15,601,000	550,000	....	....

YEARLY TOTALS

	Capital	Refunding
1934	$ 132,370 000*	$ 278,865,000*
1933	160.584.000	220,867,000
1932	321,349,000	318,534,000
1931	1,763,448,723	825,516,700
1930	4,944,403,166	528,875,877
1929	8,639,439,560	1,386,921,569
1928	6,079,602,416	1,738,274,615
1927	5,391,008,544	1,928,187,260
1926	4,357,002,720	942,550,970
1925	4,100,725,167	637,384,524
1924	3,322,295,764	516,275,300
1923	2,712,996,155	530,345,942

* For ten months.

well as of imports was approximately at the same rate that prevailed during the same months of 1933.

STEEL PRODUCTION

The steel production of ingots for 1934 (first 11 months) totals 23,312,000 tons, compared with 20,796,000 tons for the corresponding period of 1933, and with 12,461,000 tons in 1932, 23,891,000 tons in 1931, 37,307,000 in 1930, and 51,408,000 in 1929. Pig iron production for the first 11 months of 1934, totalled 14,884,000 tons as compared with 12,029,000 tons for the corresponding period in 1933, and for the same period with 8,141,000 tons in 1932, 17,295,000 tons in 1931, 29,734,000 tons in 1930, and 39,447,000 tons in 1929.

BUSINESS FAILURES

Reference should also be made to the 1934 record of the decreased number of business failures, one of the few bright spots of the year. As was explained last year: "The year 1932 showed a substantial increase of bankruptcies over 1931, namely 30,301 (Bradstreet and Dun average) as contrasted with 27,325. For the two years the percentage of failures to the total firms in business stood respectively at .120 and .106. For 1933 the showing was decidedly better, practically every month showing a percentage improvement over the preceding month, namely .141 in January, to .093 in April, to .080 in June, to .072 in August, and to .059 in October." The total number of failures for the year was only 20,308 as compared with nearly 32,000 during 1932. For 1934, the showing has been even much better than during 1933. For the first 11 months of this year (the latest available) the total number of failures amounted to only 11,242, as compared with 19,176 for the corresponding period of 1933, and for the same period with 29,353 for 1932, 25,527 for 1931, 23,830 for 1930, and 20,872 for 1929. The same favorable showing is also apparent with respect to total liabilities of failures. For the first 11 months of 1934, these liabilities amounted to only $243,335,000 as compared to the corresponding period with $475,629,000 for 1933, $864,000,000 for 1932, $663,000,000 for 1931, $585,000,000 for 1930, and $421,000,000 for 1929. The year, 1934, clearly gives evidence that the liquidation of this depression has substantially run its course, and the total number of bankruptcies, as well as the liabilities involved, is the smallest for any year since 1919.

DIVIDEND PAYMENTS

Last year's issue of The American Year Book explained how industrial and railroad dividends were fairly well maintained during 1930 and 1931, but that during 1932, owing to the continued and increasingly drastic nature of the depression, this barometer also began to show up badly. Everywhere managements became fearful of their surplus accounts, and therefore cut dividends in order to maintain depleted resources. Thus during 1932 (*New York Stock Exchange Bulletin*) the cash dividends of industrial and miscellaneous corporations totalled only $2,414,000,000 as compared with $3,535,000,000, $4,088,000,000, and $3,700,000,000 for the years 1931, 1930 and 1929. The bad record of 1932, was even exceeded by 1933, when the industrial and miscellaneous corporation dividends totalled only $2,007,000,000, and the railroad dividends only $170,000,000. For 1934, the record is slightly better, the dividend distribution for industrial and miscellaneous corporations for the first 11 months (the latest available) amounting to $2,069,000,000 and the railroad dividends to $169,000,000. As was explained last year: "This depression has certainly proved severe upon stockholders and drives home the lesson of large surplus maintenance. It is certainly reasonable to believe that one of the lessons derived by business managers from this severe business depression is the wisdom of increasing surplus (insurance) reserves even more in the next period of prosperity."

INDEX NUMBERS

Last year's discussion explained how 1933 showed a rising tendency in prices as compared with 1932. For 1932 the Bradstreet Index of wholesale prices averaged 7.10, with the highest monthly average prevailing in January (namely 7.52), and almost the lowest average in December, namely 6.79. Even lower averages prevailed during the first three months of 1933, namely 6.53, 6.35, and 6.54. Thereafter, however, there was a continual monthly rise until September, when the monthly average stood at 9.05. During 1934, the high monthly average of 1933, was subsequently maintained throughout the year. The present year started with a monthly average of 8.83 for January. Thereafter every month exceeded 9, the variation ranging between a minimum of 9.01 and a maximum of 9.48, with the close of the year (December) standing at 9.29. The Bradstreet average for the whole year is 9.22, compared with 7.86 for 1933, 7.09 for

INDEX NUMBERS OF COMMODITY PRICES

(Source of U. S. Dept. of Labor—*Survey of Current Business*)
(Source of Bradstreet—Standard Trade and Securities, *Statistical Bulletin*)
(Source of U. K. Board of Trade—*Board of Trade Journal*)

	U. S. Dept. of Labor		Bradstreet		U. K. Board of Trade	
	1933	1934	1933	1934	1933	1934
January	61.0	72.2	6.79	8.83	83.9	87.7
February	59.8	73.6	6.53	9.01	82.8	88.2
March	60.2	73.7	6.35	9.26	81.7	87.0
April	60.4	73.3	6.54	9.17	81.3	86.2
May	62.7	73.7	6.98	9.16	83.1	85.8
June	65.0	74.6	8.02	9.14	85.1	86.8
July	68.9	74.8	8.34	9.24	85.6	86.7
August	69.5	76.4	9.01	9.32	85.8	88.5
September	70.8	77.6	8.99	9.48	86.3	88.2
October	71.2	76.5	9.05	9.46	85.9	87.3
November	71.1	....	8.85	9.28	86.1	87.3
December	70.8	....	8.81	9.29	86.1	....

YEARLY AVERAGE

(Bradstreet)

1903	7.94
1904	7.92
1905	8.09
1906	8.41
1907	8.90
1908	8.00
1909	8.51
1910	8.98
1911	8.7129
1912	9.1867
1913	9.2115
1914	8.9985
1915	9.8531
1916	11.8236
1917	15.6385
1918	18.7117
1919	18.6642
1920	18.8096
1921	11.3695
1922	12.1186
1923	13.4028
1924	12.8672
1925	13.9445
1926	13.0207
1927	12.7788
1928	13.2824
1929	12.6685
1930	10.7450
1931	8.7596
1932	7.0956
1933	7.86
1934	9.22

1932, 8.75 for 1931, 10.74 for 1930, and 12.66 for 1929. Similarly, a slightly rising tendency is shown by the U. S. Department of Labor Index number. Beginning with 72.2 for January, this number rose to 77.6 for September, and stood at 76.5 for October (the latest available).

EMPLOYMENT AND PAYROLLS

With respect to labor conditions, 1934 indicates but slight improvement over the close of 1933, although that year showed decided improvement over the dismal conditions of 1932. Referring to the *Industrial Bulletin* of the New York State Department of Labor on "Employment in New York City Factories," employment increased from 55 in January, 1933 to 66 in December. For 1932 the yearly average was 59, with the average for December standing at 57. With respect to payroll conditions this index also showed more or less improvement following March, 1933, namely from 38 in March to 51 in December. For 1932 the yearly average was 47, with the average for December reported at 43. In comparison, during 1934 the employment index started with 66 for January and ended with 71 for December; while the payroll index began the year with 52 and ended with 56.

THE SECURITY AND MONEY MARKETS

By S. S. Huebner

Professor, University of Pennsylvania

GENERAL CONDITIONS

The security market of 1934 was comparatively dull throughout the year. It gave no indication of the forced liquidation which was so prevalent during 1932 and during much of 1933. Instead, the 1934 market held its price level fairly well throughout the year, without, however, any notable tendency towards advancing prices. To many it seemed that the market was essentially one of accumulation, awaiting better future conditions. It does seem as though the low of July, 1932 marked the bottom as well as the turning point in this depression as far as the stock and bond markets are concerned. The firm basis of the 1934 market showed ability to meet the large mass of unfavorable news, such as labor strikes, poor corporation reports, a severe sagging of the heavier industries, and a lot of other factors little designed to inspire confidence. Apparently those who hold stocks are now fully capable of protecting their commitments. Moreover, unemployed funds piled up so plentifully with the banks, and interest rates were so abnormally low, that there seems little likelihood of heavy liquidation in what is apparently a thoroughly liquidated market.

As was explained in The American Year Book for 1933: "The 1933 stock market staged a violent recovery which reached its peak in July of that year. The rise for railroad stocks (Babson's Reports) extended from an average of 29.19 for March to 56.53 for July, and for industrial stocks during the same months from 62.95 to 108.67. It may safely be said that the year extending from June, 1932 to July, 1933 represents, in percentages, one of the most stupendous bull markets on record. Railroad stocks (using the Babson list of 20 representative roads) appreciated from an average price of 17.71 for June, 1932 to an average of 56.53 for July, 1933. During the same period, the monthly averages for 30 industrial stocks (Babson's list) increased from 50.88 to 107.67. In ever so many instances the shares of the most outstanding corporations of the nation increased in dollar valuation in a single year from 200 to 300 per cent.''

THE REACTION OF 1933-34

The rise in 1933 was so extraordinary as to make a reaction natural, and this occurred following July of 1933. The reaction has continued, with the exception of comparatively short periods, during most of 1934. But while the present price level would seem to indicate a substantial gain over the lows of 1932, it should be remembered that the present prices obtainable are in the new devalued dollar, whereas the quotations prevailing at the time of the 1932 low were in the old undevalued dollar. Thus, for example, United States Steel common stock is quoted at present at $40, *i.e.* forty 60-ct. dollars, whereas the 1932 low quotation was about $23, *i.e.*, 23 of the old undevalued dollars. Sixty per cent of $40 is $24 or approximately the low quotation of 1932. United States Steel preferred stock is selling at present at $90, *i.e.* ninety 60-ct. dollars, whereas the 1932 low quotation was about $51, *i.e.* 51 of the old undevalued dollars. Sixty per cent of $90 is $54 or approximately the low quotation of $51 in 1932. Viewed in that manner, the present level for many stocks is not now greatly above the low record of 1932. In other words, to a considerable extent the present quotations merely reflect a larger number of the smaller dollars to counteract the devaluation in the precious metal of our medium of exchange. We must also again comment, as we did last year, that there was a great realignment in prices for different groups of stocks. In other words the market has been highly selective. Certain groups, like various metal stocks, motor stocks, and merchandising stocks, did fairly well, probably because they stand to gain from inflation. Railroad stocks, on the other hand, are considerably lower in their price level than they were at the beginning of the year. Still other groups of shares, like those representing public utilities, are selling at bottom prices, some having established in recent months a low record for many years.

MARKET VALUE OF LISTED STOCKS

As was explained last year (THE AMERICAN YEAR BOOK, 1933, p. 361), the *New York Stock Exchange Bulletin* (December, 1933 issue) placed the total market value of all listed stocks on the New York Stock Exchange at $22,767,000,000 in January of 1933. Subsequently this market value was greatly increased during the bull market of the first half of the year, culminating in July 1933, when the total market value stood at $36,348,000,000. This represents an increase of nearly 60 per cent for all of the 1,285,000,000 shares listed on the New York Stock Exchange on July of that year. The decline, following July, carried the total market value down to $32,542,000,000 for December of 1933. For Jan. 1, 1934, the market value of the 1,293,000,000 shares listed on the New York Stock Exchange stood at $33,094,000,000. By February that total market value had increased to $37,365,000,000. Subsequently the total declined to a low for the year, in August, of $30,752,000,000. Thereafter the total market value again increased to $33,888,000,000 for December, or slightly in excess of the total for the month of January, *i.e.* at the beginning of the year. The average monthly stock index price, as published by the *New York Stock Exchange Bul-*

letin, ranged from 25.59 in January, 1934 to a high of 28.90 for February, then to a low of 23.75 for August, and for December of this year stood at 25.90. These averages compare with 25.13 for December, 1933, 16.96 for December, 1932, 23.59 for December, 1931, 41.13 for December, 1930, and 56.92 for December, 1929.

MARKET VALUE OF LISTED BONDS

All American bonds listed on the New York Stock Exchange showed a market value of $28,778,000,000 for Jan. 1, 1934. Subsequently that market value rose more or less consistently month by month until the figure stood at $33,566,000,000 on Dec. 1 of the year. The December figure, it should be stated, compares with $26,065,000,000 for the corresponding date of 1933, $26,801,000,000 for 1932, $28,140,000,000 for 1931, $29,797,000,000 for 1930, and $29,096,000,000 for 1929. The bond market on Dec. 1, 1934 shows that a high level of bond prices has been reached. At the beginning of 1934 the average price for 1,181 issues of American bonds stood at 85.11. Thereafter the average price rose month by month until it reached 93.16 on July 1. Then a decline occurred until Aug. 1 when the average stood at 90.05, with a subsequent rise to 91.68 on Dec. 1. The last figure compares with 82.98 on Dec. 1, 1933, 81.36 on Dec. 1, 1932, 84.13 on Dec. 1, 1931, 96.51 on Dec. 1, 1930, and 96.80 on Dec. 1, 1929.

VOLUME OF STOCK TRANSACTIONS

The year 1934 may be described as one of comparative dullness, the volume of transactions being even smaller than during the inactive year of 1933. The inactivity seemed to become increasingly greater during the last half of the year. Whereas the monthly record of sales during January and February totalled 54,765,000 and 56,829,000 shares respectively, the pace tapered down to 12,635,000 and 15,659,000 shares during September and October, with comparatively little change since that time. By way of comparison, the market activity of 1933 was quite pronounced, particularly during the bull market of the first half of the year. As prices reached the high levels of June and July, we again began to witness four- and five-million-share days, thus reminding us in a way of the feverish activity during 1929.

Shares sold on the New York Stock Exchange totalled only 323,871,840 for 1934 (as reported by *The New York Times*), as compared with 654,874,840 for 1933, 424,800,642 for 1932, 576,921,426 for 1931, 810,038,161 for 1930, 1,124,991,490 for 1929, and 316,787,725 for 1919, the highest record of the preceding industrial cycle. But as previously explained, the huge rise in the number of shares dealt in in 1929 and 1930 was partly attributable to the substantial increase in the number of additional shares listed on the New York Stock Exchange, such increase being indicated by the fact that whereas the number of listed shares totalled 655,000,000 in 1928, the total increased in 1929, 1930, and 1931 respectively to 757,000,000, 1,128,000,000, and 1,296,000,000. The substantial increase in volume of transactions during 1933, however, as compared with 1932 or 1934, is not influenced by this factor. At the beginning of 1932 the total shares listed on the New York Stock Exchange amounted to 1,318,000,000, whereas at the present time the total stands at only 1,293,00,000. On the New York Curb Market 1934 sales also showed a very considerable decline, the total sales standing at 59,888,426 (*The New York Times* report) as compared with 100,736,000 shares for 1933 and 56,997,581 shares for 1932. The 1934 total compares with 109,842,434 for 1931, 222,268,045 for 1930, and 473,770,970 shares during 1929.

STOCK PRICES

Railroad Shares. — In conformity with the practice of previous years, the movement in stock prices for different groups of shares may be illustrated with Babson's composite price for different groups of selected stocks. Thus, using the list of 20 representative railroad stocks, the average high for January 1934 was 50.55. By July, however, that average had fallen to 44.19, and thereafter the following

SHARES TRADED ON THE NEW YORK STOCK EXCHANGE

(*New York Stock Exchange Bulletin*)

	1933	1934
January	18,718,292	54,565,349
February	19,314,200	56,829,952
March	20,096,557	29,909,904
April	52,896.596	29,845,282
May	104,213,954	25,335,680
June	125,619,530	16,800,155
July	120,271,243	21,113,076
August	42,456,772	16,690,972
September	43,333,974	12,635,870
October	39,372,212	15,659,921
November	33,646,666	20,870,861
December	34,876,456	....

months (August and September) showed successive declines in the average price level to 38.42 and 36.62. Since September the average high for October, November and December has remained practically constant, namely 37.69, 37.19, and 37.96. The December average of 37.96 compares with a corresponding average of 50.55 for January of 1934, with 56.53 for July of 1933, and yearly averages of 31.62 for 1932, 81.91 for 1931, 137.82 for 1930, and 165.83 for 1929. During 1929, it should be noted, these railroad shares reached the highest monthly level during September, namely 189.11. Comparing this 1929 September average with the 1932 low average of 13.23, it appears, as was explained last year, that these railroad shares declined within the three years under consideration by over 92%. The December 1934 average of 37.96, compared with the 1932 low monthly average of 13.23, shows an appreciation of about 187%. Yet this December 1934 average, compared with the September high of 1929 (189.11) still shows a depreciation of nearly 80%.

Industrial Shares. — In industrial stocks the decline in prices during 1934 has been less than was the case with the railroads. Again taking Babson's composite price for 30 leading representative industrial stocks for illustrative purposes, representing the leaders in their respective lines, it appears that the January average high for 1934 stood at 108.99, and in February reached 110.74. By September, however, that average had declined to 93.65. Thereafter, for October, November and December the corresponding averages rose successively to 95.6, 103.08 and 104.04. The December average high of 104.04 compares with 108.67 for July 1933, and yearly high averages of 89.77 for 1933, 71.24 for 1932, 149.86 for 1931, 248.90 for 1930, and 327.01 for 1929. During 1929, it should be noted that this industrial list reached the highest monthly level during September, namely 381.17. Comparing this 1929 September average with the 1932 low average of 41.22, it appears that these industrial shares declined within the three years under consideration by nearly 90%. The December high average of 104.04 for 1934, compared with the 1932 low average of 41.42, shows an appreciation of about 153%. At the same time, however, it should again be borne in mind that the December 1934 average, compared with the September high of 1929, still shows a depreciation of about 73%.

YEARLY TOTALS

	Shares of Stock
1919	316,787,725
1920	226,640,400
1921	172,712,716
1922	258,652,519
1923	236,115,040
1924	281,991,597
1925	454,404,733
1926	450,845,255
1927	576,563,218
1928	919,661,825
1929	1,124,991,490
1930	810,038,161
1931	576,921,426*
1932	425,235,829*
1933	654,874,210*
1934	323,871,840*

* (from *The New York Times*.)

Mining Shares.—A similar situation presents itself in the mining group of shares. According to Babson's composite price for 20 leading and representative mining stocks, the January average price for 1934 stood at 18.3 and for February at 20.1. February gave the highest monthly average for the year. By September the average had declined to 18.4, and for the last three months of October, November and December the price remained practically a constant, namely 17.6, 17.3 and 17.6 respectively. The December 1934 average of 17.6 compares with the yearly average of 13.8 for 1933, 7.6 for 1932, 16.5 for 1931, 36.1 for 1930, and 74.3 for 1929. During 1929, it may be noted that the Babson list of mining shares reached the highest monthly average during March, namely 88. Comparing this 1929 March average with the 1932 June average of 4.6, it would appear that these mining shares declined within the three years under consideration by nearly 95%. The December 1934 average of 17.6, compared with the 1932 June average of 4.6, shows an appreciation of nearly 283%. Again, however, it is important to note that the December 1934 average, compared with the March high of 1929 (88.0), still shows a depreciation of over 79 per cent.

SECURITY MARKET PRICES*

	Railroads 20 Stocks		Industrials 50 Stocks		Composite Bonds 60 Bonds			
	1933	1934	1933	1934	1933		1934	
					High	Low	High	Low
January	28.47	47.26	51.63	93.09	72.0	68.2	82.0	74.8
February	26.95	51.94	45.73	97.75	70.8	64.8	85.1	82.7
March	26.91	50.08	47.52	93.26	67.5	63.6	85.8	83.9
April	28.87	50.54	57.19	94.87	67.2	63.7	88.1	84.9
May	39.04	45.58	73.42	86.66	76.1	67.9	87.2	85.0
June	45.21	45.66	83.04	86.48	78.9	74.6	86.8	85.5
July	51.27	40.93	87.18	81.02	83.4	79.3	87.2	84.0
August	50.95	37.40	88.18	80.61	81.2	80.0	84.7	82.5
September	48.40	36.63	90.57	79.47	79.9	75.3	84.1	81.6
October	40.44	37.61	81.34	80.46	76.7	74.0	84.8	83.3
November	40.22	....	86.16	....	73.8	70.2	85.1	83.9
December	42.54	....	88.37	....	74.9	71.8	....	....

* (Source of data—Standard Trade and Securities, *Statistical Bulletin*, Standard Statistics Company, Inc.)

Price Factors.—The comparatively low price level throughout 1934, and the unwillingness of the market to forge ahead more energetically, seem surprising in the light of the abundance of cheap credit, available as yet primarily for listed securities possessing the benefits of liquidity because of the continuous market afforded by our stock exchanges, and the further fact that the economic situation seems to have been so thoroughly liquidated. In every direction there seems to be a lack of confidence, *i.e.* an unwillingness to put capital to use. According to the financial press the future seems clouded with too many radical propositions strongly advocated in many influential centers. A policy of sitting on the mainspring of profits seems to have prevailed in many quarters to the extent of becoming a stifling influence. The huge expenditures for relief, governmental interference with private initiative, rapidly increasing taxation, a labor market disturbed with frequent strikes, and uncertainty concerning the future value of the dollar have no doubt also been important factors in bringing about a hesitant and stifled market. Stock markets cannot be expected to forge ahead, discounting a brighter future, until the speculative market visualizes more clearly the removal of fundamental obstacles with respect to business progress.

THE BOND MARKET

Sales.—Bond sales on the New York Stock Exchange during 1934 totalled $3,729,460,500 (*The New York Times* report) as compared with $3,366,402,950 for 1933, $2,951,965,-

650 for 1932, $3,075,347,100 for 1931, $2,779,009,350 for 1930, and $3,020,316,700 for 1929.

Price Changes. — Unlike shares, bonds enjoyed a substantial rise during 1934. The 1934 price level for investment bonds, judging from Babson's composite price of 20 leading representative bonds, showed a substantial appreciation. For January 1934, the average price stood at 87.2, and the rise in the monthly average was continuous until 95.7 was reached for June. Therafter a moderate decline occurred, the November average standing at 92.8. This figure compares with a yearly average of 81.8 for 1933, 76.0 for 1932, 92.4 for 1931, 96.1 for 1930, and 92.6 for 1929. The November 1934 average of 92.8 (the latest available) it should be noted compares with the low monthly average for the depression of 67.0 (for June 1932), and the highest monthly average during the depression of 97.8 for February and March of 1931. In other words, the June 1934 average of 95.7 was but two points under the highest figure of 1931, and it may be added but three points below the highest monthly average reached since 1928.

INTEREST RATES

(Source of Interest Rate Data—*Standard Statistics*)
(Source of Average Bank Rate—*Babson's Statistical Service*)
(Source of Gold Movements—*Babson's Statistical Service*)

	Call Loans—N. Y. Commercial Paper 4-6 months (choice)		Stock Exchange Renewals—average of daily renewal rates		Average Bank Rates—England, France and Germany		Gold Movements (*Exports Exceed Imports)	
	1933	1934	1933	1934	1933	1934	1933	1934
January....	1.38	1.50	1.00	1.00	2⅜	2⅚	$128,465,000	*$ 2,768,000
February...	1.38	1.50	1.00	1.00	2⅜	3	8,876,000	452,571,000
March.....	3.03	1.26	3.56	1.00	2⅚	3	*13,175,000	237,336,000
April.......	2.66	1.25	1.43	1.00	2⅚	3	*9,972,000	54,748,000
May.......	2.10	1.19	1.00	1.00	2⅚	3	*21,140,000	33,582,000
June.......	1.94	1.00	1.00	1.00	2⅚	2⅚	*3,243,000	63,705,000
July.......	1.75	1.00	1.00	1.00	2⅚	2⅚	*83,879,000	....
August.....	1.75	1.00	.94	1.00	2⅚	....	*80,388,000	....
September..	1.53	1.00	.75	1.00	2⅚	....	*56,736,000	....
October....	1.50	1.00	.75	1.00	2⅚	....	*32,350,000	....
November..	1.50	1.00	.75	1.00	2⅚	....	*783,000	....
December..	1.50	....	.94	....	2⅚	....	*9,128,000	....

Market Values.—Considered as a whole, the bond market of 1934 has given a fairly satisfactory account of itself. Although the par value of all of the American bonds listed on the New York Stock Exchange (December issue of the Stock Exchange Bulletin) increased between Jan. 1 and Dec. 1 of 1934 from $33,815,061,270 to $36,611,641,807, or by about 8.3 per cent, the total market value of these bonds increased during the same period from $28,778,405,734 to $33,566,422,114, or by 23 per cent. The average price for all of these bonds rose from 85.11 on Jan. 1, 1934, to 93.16 on July 1, while on Dec. 1 the average stood at 91.68. This Dec. 1 average compares with 82.98 for Dec. 1, 1933, 81.36 for Dec. 1, 1932, 84.13 for the same date in 1931, 96.5 for 1930, 96.80 for 1929, 98.69 for 1928, and 101.26 for 1927.

THE MONEY MARKET

Rates.—With respect to both time and call loan rates, the 1934 tendency continued much as it was during 1933 and 1932, and is indicative of a plethora of funds. Just as was explained in last year's account, New York time and call loans were often quoted at a fraction of 1 per cent, thus showing the unusual absence of demand for funds for commercial and speculative purposes. Beginning with a January average of 1¼ per cent for prime commercial paper and 1 per cent for call loans in New York, the average monthly rates during 1934 remained extremely low, month after month, throughout the year. From March to November (the latest month for which an average is obtainable at the time of this writing) the rate on prime commercial paper in New York ranged from 1 to ¾ of 1 per cent. Beginning with May the monthly average dropped to ⅞ of 1 per cent, and thereafter each monthly average stood at ¾ of 1 per cent. For call loans in New York all of the monthly averages from January to November inclusive, are reported at 1 per cent.

BANK CLEARINGS

(*Commercial and Financial Chronicle*)

	Exclusive of New York		Inclusive of New York	
	1933	1934	1933	1934
January	$7,467,203,481	$7,844,154,510	$20,113,128,506	$21,396,408,904
February	6,212,264,821	7,007,078,529	18.375,981,619	20,506,980.527
March	4,998,543,205	8,355,246,029	16,454,868,471	23,513,613,085
April	5,893,593,135	8,262,512,721	16,682,416,146	24,351,127,423
May	6,680.048,937	8,497,373,211	20,040,993,182	22,956,288,561
June	7,443,669,374	8,623,867,083	23,268,248,965	23,049,671,467
July	7,986,186,466	8,470,390,204	24,048.057,931	21,518,782,747
August	7,283,691,582	8,281,354,695	20,700,458,313	19,916,153,005
September	7,274,653,380	7,966,123,538	19,732,428,383	19,587,140.798
October	7,764,371,271	9,076,064,378	21,096,371,128	21,362,959,715
November	7,290,196.055	8,360,604,095	19,816,209,461	19,540,584,400
December	7,644,084,261	9,113,295,661	21,023,337,613	23,665,149,245

YEARLY TOTALS

	Exclusive of New York	Inclusive of New York
1934	$99,858,064,654	$261,364,859,877
1933	83,938,505,968	241,352,499,718
1932	96,495,830,646	256,634,294,429
1931	147,067,772,606	410,338,166,564
1930	196,785,442,067	543,894,970,187
1929	250,494,561,030	727,736,843,191
1928	242,144,679,206	633,872,155,470
1927	233,875,528,415	555,109,742,076
1926	233,418,828,972	523,773,772,455
1925	228,596,560,498	512,215,805,135
1924	205,891,161,152	455,759,342,491
1923	199,456,248,672	413,452,431,399
1922	173,606,925,839	391,507,311,933
1921	161,256,972,863	355,588,192,536
1920	206,592,968.076	449,727,981,440
1919	181,982,219,804	417,784,854,691

Borrowings. — According to the *New York Stock Exchange Bulletin* (December, 1934) the borrowings of New York Stock Exchange members on security collateral have actually shown a decline as compared with 1933. Thus demand loans decreased between Jan. 3 and Oct. 10 of 1934 from $576,723,000 to $450,447,000, whereas during 1933 from Jan. 1 to Dec. 1 there was an increase from $226,452,000 to $544,318,000. Time loans from Jan. 3 to Oct. 10, 1934, showed a slight increase from $260,586,000 to $274,046,000, whereas from Jan. 1 to Dec. 1, 1933 there was a doubling from $120,352,000 to $244,912,000. Combining both types of loans there was a decline during the indicated period of 1934 from $837,309,000 to $724,493,000, and this despite the extraordinarily low interest rates prevailing throughout the year. The last mentioned totals compare with $587,159,000 for Jan. 1, 1932, $1,893,000,000 for Jan. 1, 1931, $3,989,000,000 for Jan. 1, 1930, and $6,439,000,000 for Jan. 1, 1929.

X. BUSINESS AND FINANCE

THE STATUS OF THE NEW YORK STOCK MARKET

By Richard Whitney

President of the New York Stock Exchange

GENERAL

The Status of the New York Stock Market is a title which implies an examination of the moral, economic and legal position of that market. Like every other organization which constitutes a vital part of the nation's life, the stock market's position and experiences are necessarily determined by the character of the times and the broad developments of national history. The market itself is a passive screen upon which are reflected the changing economic fortunes of the land. It is not, as is commonly assumed, the active agent which influences changes in the course of business, nor is it responsible for the ebb or flow of prosperity. In considering the present status of the stock market it is necessary to keep this basic fact in view.

PREVIOUS DISCHARGE OF PUBLIC TRUST

Among the security markets of the world, the New York Stock Exchange has always been pre-eminent for the excellence of its mechanical facilities, for the magnitude of its aggregate transactions, for the scope of its interest and for the uncompromising discipline with which it has administered its rules of "fair and equitable principles of trade." Its Governing Committee summons offenders against these principles, examines the evidence with a complete grasp of the intricate technicalities involved and renders decisions with a dispatch which the regular processes of justice cannot equal.

UNDERMINING OF PRESTIGE BY BUSINESS DECLINE

With the downward turn in the great post-war business cycle, the New York Stock Exchange, in common with many other institutions, was confronted with a succession of grave problems. Their moral significance is discovered in the, perhaps natural, effect which severe losses incurred by business men, investors, farmers and workers, had upon their attitude toward the market place where those losses were dramatically reflected. There was a disposition to blame the instruments which reported the economic tragedies of the time.

This flaw in human nature led to a continuous assault upon the stock market. The effort of unprejudiced minds to present the causal facts of the public distress proved only partially effective against this flood of criticism. The public wished to see an explanation of the depression which would relieve individuals of a sense of failure. This led many writers to elaborate the fallacious but, to the unthinking or irritated, gratifying thesis that the financial district was to blame for the depression. This trial and conviction in parts of the public press on charges, which opportunity and physical limitation prevented the security markets from answering adequately, tended to hurt the moral position of the New York stock market. But the origin of this impairment in prejudice and misinformation, made its duration limited. The storm has probably spent itself and very likely the New York stock market in the near future will regain in full the prestige and public esteem which it enjoyed before the collapse of security prices in the fall of 1929.

ECONOMIC STATUS

Economically the status of the New York stock market is affected by two factors. The first of these is the course of business activity and entrepreneurial profits, and the second is taxation. An improvement in business affects the stock market in a number of ways. The first and most obvious perhaps is the effect of increased earnings or the prospect of such increase upon security values. An authentic improvement in profits or in profit prospects will cause a rise in security values. The change in prospects at the same time will stimulate volume.

It is at such periods that the divergencies in judgments of individual investors become most acute. Those who over-estimate the increase in corporate earnings will be eager to buy. Those who believe that the prospects have been exaggerated and are not willing to admit a genuine increase in the value of securities will sell. Their conviction that buyers are over-optimistic may be so strong as to induce short selling. In other words, they are willing to combat the sanguine opinions of the optimists with their own more sombre views to the extent of borrowing securities and assuming the greater hazard inherent in the short position.

The point to be made here is that the change in corporate prospects stimulates investment evaluations and thus increases market trading. Since the positive view of the future always attracts a greater number of participants than the negative view, a rise in business volume and the corresponding improvement in earnings will bring with it an increase in security volume. Reverting to the moral position of the market touched upon above, this same improvement will result in a better public attitude, even if not a better understanding, toward the market place. The relation of business activity and corporate earnings on the one hand and security volume and values on the other is indicated in the following table:

SECURITY VALUES AND BUSINESS ACTIVITY

	Total Market Value of Stocks	N. Y. S. E. Stock Price Index	Index of Industrial Production[1]	Corporate Earnings[2]	N. Y. S. E. Number of Shares Sold
1929					
January	$67,478,138,151	166.1	117	...	110,803,940
February	71,114,287,624	163.2	121	...	77,971,600
March	71,871,889,789	161.6	124	766	105,634,570
April	69,770,122,189	155.5	124	...	82,594,930
May	73,718,875,840	157.6	126	...	91,305,550
June	70,921,426,187	147.5	125	871	69,547,500
July	77,264,128,909	158.2	120	...	93,378,690
August	81,569,046,497	163.7	122	...	95,603,400
September	89,668,276,854	173.3	123	939	100,056,120
October	87,073,630,423	161.5	121	...	141,668,410
November	71,759,485,710	125.0	108	...	72,460,420
December	63,589,338,823	110.2	96	769	83,583,780
1930					
January	64,707,878,131	111.1	103	...	62,308,290
February	69,008,836,529	116.7	109	...	68,723,210
March	70,806,703,327	119.2	106	602	96,558,690
April	76,075,447,459	127.4	107	...	111,041,000
May	75,304,607,812	123.9	105	...	78,040,030
June	75,018,855,283	121.0	99	630	76,593,250
July	63,892,327,059	102.0	90	...	47,746,090
August	67,221,337,495	103.8	90	...	39,869,500
September	67,721,086,999	103.6	92	623	53,545,145
October	60,143,183,105	92.4	90	...	65,497,479
November	55,025,710,617	84.4	84	...	51,945,840
December	53,311,859,703	81.8	76	504	58,764,022
1931					
January	49,019,878,459	75.2	82	...	42,503,382
February	52,061,956,709	79.8	87	...	64,181,836
March	57,054,766,481	87.5	89	382	65,658,087
April	53,336,394,495	81.7	90	...	54,346,836
May	48,569,988,485	74.0	89	...	46,659,525
June	42,533,985,679	64.8	83	441	58,643,847
July	47,417,147,581	72.3	80	...	33,545,650
August	44,422,740,446	67.8	78	...	24,828,522
September	44,587,026,110	67.3	77	390	51,040,168
October	32,327,037,441	48.7	75	...	47,896,533
November	34,246,649,501	51.6	72	...	37,355,208
December	31,105,267,133	46.9	68	267	50,105,818

SECURITY VALUES AND BUSINESS ACTIVITY—*Continued*

	Total Market Value of Stocks	N. Y. S. E. Stock Price Index	Index of Industrial Production*	Corporate Earnings**	N. Y. S. E. Number of Shares Sold
1932					
January	26,693,836,532	40.2	71	...	34,362,383
February	26,377,647,814	39.7	71	...	31,716,267
March	27,585,989,257	41.5	68	225	33,031,499
April	24,501,826,280	37.0	64	...	31,470,916
May	20,319,088,631	30.4	61	...	23,136,913
June	16,141,061,080	24.3	59	170	23,000,594
July	15,633,479,577	23.6	56	...	23,057,334
August	20,494,759,465	31.0	59	...	82,625,795
September	27,782,501,806	42.1	67	183	67,381,004
October	26,734,828,668	40.5	68	...	29,201,959
November	23,440,661,828	35.5	65	...	23,054,483
December	22,259,137,174	33.7	60	209	23,195,147
1933					
January	22,767,636,718	34.5	64	...	18,718,292
February	23,073,194,091	35.3	64	...	19,314,200
March	19,700,985,961	30.3	60	124	20,096,557
April	19,914,893,399	30.7	67	...	52,896,596
May	26,815,110,054	41.3	79	...	104,213,954
June	32,473,061,395	50.1	91	309	125,619,530
July	36,348,747,926	56.5	96	...	120,271,243
August	32,762,207,992	51.1	90	...	42,456,772
September	36,669,889,331	56.6	85	416	43,333,974
October	32,729,938,196	50.4	78	...	39,372,212
November	30,117,833,982	46.4	72	...	33,646,666
December	32,542,456,452	50.1	69	309	34,876,456
1934					
January	33,094,751,244	51.0	77	...	54,565,349
February	37,364,990,391	57.6	83	...	56,829,952
March	36,657,646,692	56.5	86	315	29,909,904
April	36,699,914,685	56.6	88	...	29,845,282
May	36,432,143,818	56.1	89	...	25,335,680
June	33,816,513,632	52.1	84	...	16,800,155
July	34,439,993,735	53.1	75	364	21,113,076
August	30,752,107,676	47.4	74	...	16,690,972
September	32,618,130,662	49.5	...	...	12,635,870
October	32,319,514,504	49.0	...	...	15,659,921
November	31,613,348,531	48.3	...	...	....
December	....	.....	...	...	....

[1] Compiled by Federal Reserve Board.
[2] Compiled by Federal Reserve Bank of New York.

THE STOCK MARKET AS AN AID IN SECURING NEW CAPITAL

Rising business activity will affect the economic position of the New York stock market at another point. The years of the depression have been years of capital repression. Corporations sought to conserve their reserves for the emergencies which might come with a further decline in business. This forced conservatism retarded improvements, plant additions and innovations. Both business and banking were reluctant to join in the solicitation of new capital; first, because it might be difficult to employ profitably and, second, because it might be difficult to obtain. As a result new capital issues sank to the vanishing point.

One of the fundamental economic purposes of the stock market is to serve as a secondary market to facilitate the initial distribution of new securities. If capital ever regains its courage in the hope of adequate protection and reasonable freedom in experimenting with its opportunities, there will be a revival in the flow of new issues and, with that revival, the restoration of substantial business to the New York stock market.

EFFECT OF TAXATION UPON MARKET ACTIVITY

The second important factor that affects the economic position of the New York stock market is taxation. A tax upon market activity is an impediment upon the free play of the value making processes which seek expression upon the market place. Concretely a tax upon the sale of a share of stock constitutes a penalty upon the privilege of change whether that change be induced by distress, by greater opportunities in some other security or by a desire to maintain funds in completely liquid form.

Sound public policy should promote the utmost freedom in effecting such changes, since only in that manner can the most perfect approximation to true values be attained. Such values cannot be fixed scientifically. Values established in the only practicable manner possible, that is, in the open market, remain fixed only so long as the conditions under which they first emerged remain stable. Consequently true value is not a permanently fixed but a constantly varying concept. To approximate it, a free market is necessary. When impediments are introduced, which penalize the full freedom of value expression, to that extent are wholesome value judgments excluded the presence of which would make for a truer value.

A tax has first of all the effect of reducing volume. By excluding marginal traders and investors, the number of those bidding for and offering stock is reduced. The market is made thinner. Values become more erratic and vary increasingly from what, in a more perfect open market, would be the true value. This is a definite loss to the security holder who wishes to sell and equally to the man with funds who wishes to buy.

The tax is unfortunate for another reason. It is difficult to confine the views of men with active minds who study business trends and security values. If such men are penalized by a community each time they trade, they will seek other jurisdictions where the government seems more enlightened economically. Excessive local taxation tends to drive transactions to other markets and to some extent entirely out of the country. The men who transfer their trading cannot be criticized since they yield to a universal human tendency to follow the path of least resistance which in business is the line of lowest cost. Sound economic theory, amply corroborated by history, proves that this tendency in the long run pays rich social dividends to the community as a whole.

CAPITAL GAINS TAX

Taxation likewise impedes the economic functioning of the stock market in still another maner. The tax upon capital gains has been one of the prominent but definitely ignored causes of the severe deflation in security values. Many investors were persuaded in 1927 and 1928 that security prices were at levels which could not be sustained by business activity and earnings. There were other and equally competent views on this matter. The point here is not that one party was right and the other wrong, but rather that the capital gains tax acted to prevent one party from freely expressing its skepticism regarding the future of security values. Many investors would have sold their holdings long before the turn in the fall of 1929 had it not been for the penalty which the capital gains tax imposed upon conversion. As a result the market was denied the valuable counterweight of a substantial body of investors whose sales might have checked the rise to the 1929 peak. The government was taking ballast out of the ship, enabling it to go faster but making it less seaworthy during storms.

SECURITIES EXCHANGE ACT

Legally the status of the New York stock market has been altered by the passage of the Securities Exchange Act of 1934. This Act establishes a commission of five men known as the Securities and Exchange Commission whose duty it is to administer the law. The period of operation under the law has been too brief to permit any considered opinion on its effect upon the New York stock market. The law and the constitution of the New York Stock Exchange agree in their expressed purpose to promote an open market for securities under just and equitable principles of trade. The New York Stock Exchange is cooperating in every way with the Securities and Exchange Commission in order to effectuate this joint purpose.

The New York stock market is regaining the moral position which it enjoyed before 1929. Economically its position depends upon the course of business, corporate earnings and the degree of economic understanding which the tax policy of the various government jurisdictions contain. Legally its objectives are approved. Its position in the future is defined by the Securities Exchange Act.

BANKING AFFAIRS

BY GURDEN EDWARDS

SECRETARY, ECONOMIC POLICY COMMISSION
AMERICAN BANKERS ASSOCIATION

GENERAL

While 1933 was a period of difficulties for the banking structure of the United States, 1934 may be termed a year of convalescence and of recovery. Since the declaration of the banking moratorium in March, 1933, the number of national banks increased from 4,522 to 5,483 and deposits correspondingly rose from $16,315,586,000 to $20,907,250,000. The year 1934 witnessed only 58 bank failures with but one of them a national bank failure as contrasted with an average of 901 failures annually from 1921 to 1932. Of the 1,417 unlicensed banks under the supervision of the Comptroller of the Currency, following the collapse of 1933, all have been reorganized, liquidated or have drawn up plans for reorganization. At the close of the year 1934, there were in active operation 5,483 national banks and 10,341 state chartered institutions.

THE BANKING STRUCTURE AT THE OPENING OF 1934

An analysis of what may be considered the new banking structure of the United States is supplied in the report of the Committee on State Bank research of the State Bank Division, American Bankers Association, giving detailed figures for all classes of banks in the United States as of Dec. 30, 1933. On that date banks of all classifications numbered 16,211 institutions with aggregate resources of $52,322,000,000 and capital, surplus and undivided profits amounting to $6,868,000,000 along with total deposits of $42,608,000,000. These figures based on the same sources and on the same methods of compilation as used for years by the Comptroller for compiling the series of statistical statements picturing the condition of the nation's banking structure as of June 30 each year, serve to bring these data down to the opening of 1934. They are presented in the table (page 339).

FEDERAL DEPOSIT INSURANCE CORPORATION AND BANKING REHABILITATION

The general return flow to the banks of deposits and the increased confidence of the public in the banker was stimulated in part by the operations of the Federal Deposit Insurance Corporation formed under the terms of the Banking Act of 1933. Originally the temporary provisions of the Federal Deposit Insurance Corporation section of the Banking Act of 1933 provided for insurance of not more than $2,500 for any one depositor, which was to continue until July 1, 1934. However, the Bank Deposit Insurance Act, approved June 16, 1934, extended the insurance protection for an additional year to July 1, 1935. Furthermore the amount of deposit insurance was increased from $2,500 to $5,000 for any one depositor, beginning July 1, 1934. The act also extended to July 1, 1937, the temporary insurance on the deposits of non-member banks which are Class A stockholders of the

RESOURCES AND LIABILITIES OF ALL REPORTING BANKS IN THE UNITED STATES AND POSSESSIONS, DECEMBER 30, 1933

(In thousands of dollars)

	National Banks	All Banks Other Than National	Total Banks
Number of Institutions	5,154	11,057	16,211
RESOURCES			
Loans and discounts (including rediscount)	$ 8,083,287	$ 9,955,874	$18,039,161
Overdrafts	3,048	6,544	9,592
Investments	7,855,161	14,848,306	22,703,467
Banking house, furniture and fixtures	643,580	754,625	1,398,295
Real estate owned other than banking houses	158,450	585,532	743,947
Cash in value	340,820	293,122	633,942
Reserve with Federal Reserve banks or other reserve agents	1,747,364	2,028,746	3,776,110
Other amounts due from banks	2,308,312	863,184	3,171,496
Exchanges for clearing house and other cash items	43,165	627,820	670,985
Redemption fund: due from U. S. Treasury	40,307	....	40,307
Other resources	480,406	654,055	1,134,461
Total	$21,703,865	$30,617,808	$52,321,673
LIABILITIES			
Capital stock paid in	$ 1,584,625[1]	$ 1,476,457[1]	$ 3,061,082
Surplus	878,838	2,437,625	3,316,463
Undivided profits—net	235,929	314,625	550,554
Reserves for dividends, contingencies, etc.	197,149	366,822	563,971
Reserves for interest, taxes and other expenses accrued and unpaid	[2]	41,765	41,765
National bank notes outstanding	775,270	....	775,270
Due to banks	2,289,397	1,296,130	3,585,527
Certified cashiers checks and letters of credit and travelers checks outstanding	[3]	439,433	439,322
Demand deposits	8,338,250	7,558,555	15,896,805
Time deposits (including postal savings)	6,375,155	15.090,511	21,465,666
United States deposits	552,437	330,909	883,346
Deposits not classified	....	337,191	337,191
Total deposits	(17,555,239)	(25,052,618)	(42,607,857)
Bills payable and rediscounts	81,987	382,429	464,416
Agreements to repurchase securities sold	5,905	15,620	21,525
Acceptances executed for customers	235,699	219,846	455,545
Other liabilities	153,224	310,001	463,225
Total	$21,703,865	$30,617,808	$52,321,673

[1] Includes preferred stock, capital notes and/or debentures.
[2] Included in "Reserves for dividends, contingencies, etc."
[3] Included in "due to banks."

Federal Deposit Insurance Corporation and allows them to enjoy the benefits of the permanent insurance provisions until July 1, 1937.

The banking examinations of the Corporation indicated the need of strengthening the capital structure of the banks. Hence one of the first concerns of the new organization was to promote a more adequate capitalization, for it was felt that this was imperative if the Federal Deposit Insurance Corporation was to achieve its ultimate objective of preventing bank failures and so preserving the assets of the Corporation. In order to strengthen bank capitalization, the Reconstruction Finance Corporation subscribed to more than $800,000,000, or 24 per cent of the capital stock, notes and debentures of all the insured commercial banks of the United States. As the Chairman of the Board of Directors of the Federal Deposit Insurance Corporation, Leo T. Crowley said in his speech to the Annual Convention of the American Bankers Association in October, 1934: "The general result is that the banks are in the strongest position that they have been in in this generation—stronger I think than they have ever been. This has been due to the teamwork of the Federal agencies, the Corporation, the Comptroller of the Currency and particularly the Reconstruction Finance Corporation which provided the funds.''

It was reported early in 1935 that 14,057 commercial banks had insured accounts with the Federal Deposit Insurance Corporation. Fully insured accounts numbered 49,020,716 while all accounts aggregated 49,750,556. The ratio of fully insured accounts to total accounts was, therefore, 98.53 as of Oct. 1, 1934. New York State had the largest amount of deposits insured with the Federal Deposit Insurance Corporation with Pennsylvania, California and New Jersey following in the order named.

DIRECT LOANS TO INDUSTRY

A number of new elements have been injected into the Banking situation during the past year. Among these are the granting of powers to both the Reconstruction Finance Corporation and the Federal Reserve Banks to make direct working captal loans to industry for as long as five years. The Federal Reserve Banks also may discount or purchase the obligations of commercial and industrial enterprises, from banks and other financial institutions and each bank discounting or selling obligations to the Federal Reserve Bank shall be liable for at least 20 per cent of the loss that the reserve bank may sustain. The general objective of this policy is to stimulate business activity and so increase employment through direct extension of credit by the Reserve banks, the Reconstruction Finance Corporation and the commercial banks.

THE HOME OWNERS LOAN CORPORATION

A sharp and prolonged decline in real estate values has been one of the chief characteristics of the depression. Many home owners experienced financial difficulties which at first led the Government to create a system of home loan discount banks to ease the burden. However, these institutions were not adequate, and so in 1933 the Home Owners Loan Act was passed and subsequently amended in 1934. Under the terms of the act, the Home Owners Loan Corporation may, until June 13, 1936, exchange its bonds, maturing within 18 years and bearing an interest rate of 4 per cent, for home mortgages and other liens and obligations secured by real estate. The mortgage acquired is to be amortized by payments deisgned to retire principal and interest within 15 years. Interest on the mortgage is not to exceed 5 per cent per annum. The corporation has the power until June 13, 1936 to grant cash loans not in excess of 50 per cent of the value of the property to home owners to cover taxes, assessments and repairs. The loans are to be secured by home mortgages on property not otherwise encumbered and are to be amortized in 15 years. The Home Owners Loan Corporation also may grant loans not to exceed 40 per cent of the property value where the mortgage holder does not accept the Corporation bonds in exchange for the mortgage and if a loan is not obtainable from ordinary lending agencies. Interest on such loans is not to exceed 6 per cent, and the loan is to be amortized in 15 years.

The Act also created Federal Savings and Loan Associations to encourage local thrift and home financing. These Associations may raise capital only in the form of payments on shares authorized in the charter. They may lend on the security of their own shares or on first mortgages on homes and business property within 50 miles of the home office.

SECURITIES EXCHANGE ACT

The criticism during the past few years of the practices of the investment and brokerage community led finally to the passage of legislative acts designed to modify and remedy practices believed detrimental to the interests of the public. The Securities Exchange Act was passed in 1934 to regulate securities exchanges and transactions on these exchanges.

The act was justified on the grounds that transactions in securities on both securities exchanges and over-the-counter markets are commonly affected with a national public interest necessitating regulation and control of all such dealings and the practices connected thereto; furthermore, security trading is an important part of interstate commerce susceptible at times to manipulation and control leading to excessive speculation and so causing sudden fluctuations in the prices of securities. The inevitable result is to lead to an unreasonable expansion and contraction of the volume of credit, to make difficult a proper appraisal of the value of securities and so prevent a fair calculation of taxes and, finally, to hinder the operation of both the national and Federal Reserve banking systems due to the problem of making a fair valuation of collateral for bank loans.

A Securities and Exchange Commission was created to consist of five members appointed for a period of five years to enforce this act and to take over the functions of the Federal Trade Commission in relation to the Securities Act of 1933. An Exchange may be registered with the Commission as a national Securities Exchange by filing a registration statement in accord with the rules of the Commission. In view of the fact that it is unlawful for any broker, dealer or exchange to make use of the mails or any means of interstate commerce for the purpose of using any facility of an exchange unless such exchange is registered as a national securities exchange or exempted by the Commission by reason of the small volume of transactions, it is obvious that registration is essential for those exchanges on which the bulk of the trading occurs in the United States. The Federal Reserve Board is vested with the power to determine the margin requirements on any security registered on a national exchange. For the initial extension of credit the following standard shall serve as the basis of the rules and regulations with respect to margin requirements: an amount not greater than whichever is the higher, of (1) 55 per cent of the current market price of the security, or (2) 100 per cent of the lowest market price of the security during the preceding 36 calendar months, but not more than 75 per cent of the current market price. It is unlawful for any member of a national exchange to borrow in the ordinary course of business on any security (other than an exempted security) registered on a national exchange except from or through a member bank of the Federal Reserve System or from nonmember banks complying with the terms of this Act, the Federal Reserve Act and the Banking Act of 1933 relating to the use of credit to finance security transactions. There is a general prohibition against security price manipulation and also against any transaction in any security other than an exempted security on a national exchange unless a registration is effective as to such security for such exchange. By ''exempted security'' is meant any security which is a direct obligation of the United States or guaranteed as to principal and interest by the United States, state and municipal securities and any other security so designated by the Commission. The Securities and Exchange Commission is authorized to suspend for 12 months or to withdraw the registration of a national exchange for a violation of the act or any regulation thereunder; to suspend or withdraw the registration of a security for a period not exceeding 12 months if the issuer has not complied with the act or regulations hereunder; to suspend for a period up to 12 months or to expel from a national exchange any member or officer violating the act or the regulation and, finally, to suspend trading in any registered security on any national exchange for a period of not more than ten days or with the approval of the President, to suspend all trading on any national exchange for a period up to 90 days.

THE BANKING OUTLOOK

The banking reorganization of the United States undertaken in the past two years, 1933 and 1934, has undoubtedly strengthened the American banking structure, protected depositors from loss and reduced bank failures. Recently a number of suggestions have been forthcoming designed to expand and reinforce the financial system and so protect the economic body from undue stress and strain. The future may, perhaps, witness a further expansion of the lending activities of the Government with the functions and resources of governmental agencies enlarged. The following extensions of powers and resources of the Home Owners Loan Corporation may be increased so that it may refinance more distressed urban home mortgages. The Reconstruction Finance Corporation may be recruited to further aid in the rehabilitation of the real estate business generally; furthermore, permission may be granted to the Corporation to double the life of all its loans. Finally, there has been discussion for some time as to the desirability of granting the Federal Reserve System authority to rediscount paper of a longer maturity than 90 days.

AMERICAN BANKERS ASSOCIATION

The American Bankers Association, the national organization of banking including in its membership the great majority of the 16,000 national and state commercial banks, trust companies and savings banks in the nation, held its sixtieth annual convention at Washington in 1934. The general officers of the Association elected for 1934-1935 were: President, Rudolf S. Hecht, Chairman of the Hibernia National Bank, New Orleans; First Vice President, Robert V. Fleming, President, Riggs National Bank, Washington; Second Vice President, Tom K. Smith, President, Boatmen's National Bank, St. Louis; Treasurer, Hal Y. Lemon, The National Bank of Detroit; Executive Manager, Fred N. Shepherd, American Bankers Association, New York.

TRUST BUSINESS

By Gilbert T. Stephenson

Vice President, Equitable Trust Company, Wilmington, Del.

The two noteworthy events in trust business in the United States during 1934 are (1) the publication of the directory of trust institutions, trust men and trust associations and (2) the adoption of a uniform plan of examination and form of report for the examination of trust departments.

DIRECTORY OF TRUST INSTITUTIONS AND MEN

During 1934 for the first time in the 112 years' history of trust business in the United States there was published a directory of the corporations that are actively engaged in trust business and of the men and women employed by those corporations whose lifework is the rendering of trust services.

Heretofore there have been published directories of "trust companies" containing the names, resources, officers and directors of all the corporations in the United States having the word "trust" as a part of their corporate title. But, as everybody identified or acquainted with trust business knows, fully one half of the corporations that are "trust companies" so called or that have the word "trust" as a part of their corporate title are not actively engaged in trust business, and that fully one half of the corporations that are actively engaged in trust business are not "trust companies" by name and do not have the word "trust" in their corporate title. Hence the lack of dependable information about trust institutions and trust men and the confusion in the public mind produced by the statistics that have been available.

During 1934 the Trust Division of the American Bankers Association prepared and published the first of what is expected to be an annual edition of the directory of trust institutions, trust men, and trust associations.

This directory shows that there are 2,574 trust institutions in the United States; that, in addition, here are 202 branch trust offices; that, in all, there are 2,776 trust departments; that these 2,574 trust institutions are divided almost equally betwen state-chartered banks and trust companies, on the one hand, and national banks, on the other, there being 1,288 of the former and 1,286 of the latter, and that these 2,776 trust departments (including the 202 branch offices) are located in 1,574 towns and cities.

With respect to the number of men and women whose lifework is the rendering of trust services through these 2,776 trust departments, the directory shows that there are 6,024 men and women so engaged, of whom 3,889 have the word "trust" in their official title, as "trust officer," "associate trust officer," and "assistant trust officer," and 2,135, though actively engaged in trust business, do not have the word "trust" in their official title.

The directory shows that there are 69 trust associations (associations of trust institutions) of which 22 are city associations, 9 are county associations, and 38 are state associations.

A recapitulation by states of trust institutions, trust men, and trust associations is shown in the opposite column.

Now that the basic figures have been established, hereafter it will be possible to note changes in the development of trust business in the United States showing its trends.

TRUST DIRECTORY STATISTICS

State	Institutions	Men and Women	Associations
Alabama........	23	44	1
Arizona.........	11	21	1
Arkansas........	19	32	....
California......	54	444	4
Colorado.......	24	56	2
Connecticut.....	83	213	3
Delaware.......	25	46	1
D. of Columbia..	12	50	1
Florida.........	31	51	1
Georgia........	23	48	2
Idaho..........	10	17	1
Illinois.........	103	302	1
Indiana........	84	167	1
Iowa...........	55	105	1
Kansas.........	37	74	1
Kentucky......	62	100	....
Louisiana.......	20	36	2
Maine..........	39	60	2
Maryland......	32	89	1
Massachusetts...	114	285	2
Michigan.......	50	167	2
Minnesota......	31	70	1
Mississippi......	19	28	....
Missouri........	70	155	4
Montana.......	12	20	....
Nebraska.......	18	37	1
Nevada........	2	3	....
New Hampshire.	21	37	....
New Jersey.....	229	383	3
New Mexico....	3	7	....
New York......	296	980	6
North Carolina..	41	78	1
North Dakota...	7	13	....
Ohio...........	93	205	2
Oklahoma......	19	36	2
Oregon.........	18	51	2
Pennsylvania...	364	790	4
Rhode Island...	10	47	1
South Carolina..	12	21	1
South Dakota...	12	17	....
Tennessee......	24	56	2
Texas..........	62	138	3
Utah...........	12	22	1
Vermont.......	57	44	....
Virginia........	70	123	1
Washington.....	43	35	2
W. Virginia.....	34	49	1
Wisconsin......	57	119	1
Wyoming.......	14	18	....
Alaska.........	2	5	....
Hawaii.........	8	25	....
Philippine Isls...	4	6	....
Total........	2,574	6,024	69

PUBLICATION OF TRUST ACCOUNTS AND PROPERTY

The next step, perhaps, in the dissemination of general information about trust business will be the publication of the number of trust accounts and the amount of trust property of all trust institutions. Even now this information is published about the trust departments of national banks, and in a few states, of which Pennsylvania is one, the amount of trust property in the hands of tate-chartered institutions also is published. But statistics of trust property can never reflect the facts or furnish a basis of comparison until the method of appraising and carrying property on the books of the trust department is standardized. The first real effort towards such standardization is now for the first time in process.

Trust property (trust assets) must not be confused with the capital accounts and the resources of trust institutions. The aggregate of capital, surplus, and undivided profits of the 2,574 trust institutions of the United States is $4,219,693,988, and the aggregate of resources is $31,385,707,625. But these figures bear no relation whatever to the amount of trust property in the hands of those institutions.

EXAMINATION OF TRUST DEPARTMENTS

Prior to 1934 the examination of trust departments by the Federal and state examining authorities had not been nearly as thorough or as helpful as it was during 1934 and as it will be in the future. In some cases the state examining authorities, for all practical purposes, left the examination of the trust departments to the Federal Reserve examiners or to the national bank examiners. In most cases the examinations were made by bank examiners and not by men specially trained for the examination of trust departments.

During 1934 three steps of tremendous importance have been taken with respect to the examination of trust departments. First, the Comptroller of the Currency, under whose jurisdiction the examination of national banks comes, has taken special pains to develop and train his staff for examining the trust departments of national banks. Second, in each of the twelve Federal Reserve Districts a special man has been or is to be chosen to develop and supervise the examination of the trust departments of member banks and trust companies. Third, representatives of the Comptroller of the Currency, of the Federal Reserve Board, and of the Federal Deposit Insurance Corporation have collaborated in the formulation of a plan of examination and form of report which call for a thoroughgoing, illuminating, and helpful examination. It is anticipated that the state examining authorities will, in the main, adopt a similar plan of examination and form of report. Then if —and this is anticipated as the next step—some one of the examining authorities, say the Federal Deposit Insurance Corporation which already has supervisory jurisdiction over every bank and trust company in the United States whose deposits are insured, by agreement or legislation assumes the sole responsibility for examining trust departments so far as the Federal Government is concerned, uniform examinations will be had according to a standard plan reported on a standard form.

Thus the two outstanding events in the trust field during 1934 look, one, towards giving the general public more information about trust institutions and trust men and women and, the other, towards making the examination of trust departments more thorough, more illuminating, and more helpful, thereby throwing a still further safeguard around trust property.

VOLUME OF BANKING TRANSACTIONS

By S. S. Huebner

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VOLUME OF CHECK TRANSACTIONS

Owing to its published frequency, and its national comprehensiveness, this financial barometer serves better than any other in indicating the volume of banking transactions. The account for 1933, explained the abnormal and progressively poor showing of this index during the years, 1930-33, explaining especially that the very poor showing during the first half of 1933, was attributable mainly to the national banking moratorium, and the failure of some 3,000 banks to open for business following the termination of this moratorium. But while the aggregate clearings for 1933, were even less than the extremely low total of 1932, probably the bottom year of this memorable depression, the showing during the second half of the year gave clear indication of substantial improvement. That improvement continued more or less during all of 1934, although moderately, both with respect to the monthly figures ''exclusive'' and ''inclusive'' of New York City.

Using the figures of the *Commercial and Financial Chronicle,* bank clearings for all of 1934, with respect to all of the cities represented, amounted to $261,364,859,877 as compared with $241,352,499,718 for 1933, or an increase of 8.1 per cent. For 1934, the total of $261,000,000,000 compares with corresponding totals of $256,000,000,000 for 1932, $410,000,000,000 for 1931, $544,000,000,000 for 1930, and $727,000,000,000 for 1929, the banner year on record. The improvement during 1934, as compared with last year, is clearly not of an extraordinary nature, and as compared with 1930 (the first depression year) and 1929, this year's total falls short by 52 per cent and 64 per cent respectively. It should also be noted that the monthly record, while substantially uniform throughout the year, does not show any progressive growth. The total of $23,600,000,000 for December compares with $21,400,000,000 for January, $23,500,000,000 for March, and $24,300,000,000 for April. The monthly variation for 1934, ranged from a minimum of $19,500,000,000 for September and November to a maximum of $24,300,000,000 in April.

TRANSACTIONS FOR NEW YORK CITY

Previous issues of THE AMERICAN YEAR BOOK have called attention to the outstanding importance of New York City as the nation's principal center of speculative activity in the security market, as well as with respect to many of the leading organized commodity markets, and the importance, therefor, of segregating the volume of bank clearings for New York City from those which pertain to the rest of the country. For 1934, New York clearings totalled $161,506,000,000, or more than one and one-half times the $99,858,000,000 assigned to the remaining cities reported by the *Commercial and Financial Chronicle.* For 1933, New York City clearings totalled $157,414,000,000, or nearly twice the clearings for the remaining cities. In comparison with 1932, 1931, 1930, and 1929, the 1934 total of $161,000,000,000 contrasts with $160,000,000,000, $263,000,000,000, $347,000,000,000, and $477,000,000,000 respectively. The vast difference, in comparison with 1931, 1930, and 1929, is accountable in large part to the relative dullness which has prevailed on the security markets of this important Exchange Center, and also the relatively low range of prices prevailing for most stocks. As explained elsewhere, shares traded upon the New York Stock Exchange, for example, were not only at substantially lower prices than was the case in those years, but the volume of sales amounted to only 323,871,840 shares, as contrasted with 576,921,426 in 1931, 810,038,161 in 1930, and 1,124,991,490 in 1929. Much of the same situation was also experienced on the city's numerous other exchanges.

CHECK TRANSACTIONS OUTSIDE OF NEW YORK CITY

These transactions are considered more representative of the general condition of business throughout the nation since they eliminate the factor of heavy turn-over of speculative transactions on security and commodity exchange markets, which figure in the clearings of New York City. Exclusive of New York City the 1934 total of bank clearings, reported by the *Commercial and Financial Chronicle,* still stands at only $99,858,064,654 as compared with $84,040,000,000 for 1933 (the year of the national bank moratorium), $96,499,000,000 for 1932 (the low year of the depression), $147,067,000,000 for 1931, $196,785,000,000 for 1930, and $250,494,000,000 for 1929. All in all, the low totals of 1932, 1933 and 1934, afford ample evidence of the low point to which general business had declined, and also to the fact that general business improvement during 1934, has been very moderate. Again it may be said that the monthly record for 1934, while quite uniform throughout the year, shows only a moderate forward movement. The total of $9,100,000,000 for December compares with $7,800,000,000 in January, $8,400,000,000 in March, $8,600,000,000 in June and $9,000,000,000 in October. The monthly variation ranged from a minimum of $7,000,000,000 in February to a maximum of $9,100,000,000 in December.

December figures for 1934 (*Commercial and Financial Chronicle*) show that the moderate improvement is quite general throughout the country. For the week ended Dec. 23, clearings for the various Federal Reserve Districts show the following increases as compared with the corresponding week of 1933: Boston district (12 cities) +8.2%; New York (12 cities) —9.6%; Philadelphia (9 cities) +16.3%; Cleveland (5 cities) +17.1%; Richmond (6 cities) +12.0%; Atlanta (10 cities) +5.9%; Chicago (19 cities) +45.2%; St. Louis (4 cities) +20.2%; Minneapolis (6 cities) +9.9%; Kansas City (10 cities) +13.7%; Dallas (5 cities) +11.3%; and San Francisco (12 cities) +11.1%. In only one Federal Reserve District, namely New York (12 cities) is a decrease registered, namely 9.6%. For the 110 cities comprised within the aforementioned record, inclusive of New York City, there is a slight decrease of 0.4% as compared with the corresponding week of last year. With New York City excluded, however, the increase is 17.8%. The predominant importance of New York City should again be noted, that city's total for the week of $2,664,000,000 comparing with $1,765,000,000 for all of the balance of the cities.

THE FEDERAL RESERVE SYSTEM

By George W. Blattner

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GENERAL

During 1934 efforts to bring about rehabilitation of the banking structure of the country which began with the banking crisis in March, 1933, were continued by the Federal Reserve System in cooperation with other agencies of the Government. Another important part of the work of the year consisted in interpreting and administering recent banking legislation. Many of the more important developments of the year were in the legislative field.

GOLD RESERVE ACT OF 1934

On Jan. 30 the President approved the Gold Reserve Act of 1934, which vested the title to all gold of the Federal Reserve banks in the United States, and the Federal Reserve banks were given credits in equivalent amounts in dollars in the Treasury payable in gold certificates. On Jan. 31, acting under powers reposed in him by the Congress, the President re-determined the weight of the gold dollar, which was fixed at 15 5/21 grains of gold nine-tenths fine, compared with the old weight of 25 8/10 grains. On that day the Treasury announced its intention to buy any gold tendered at $35 per fine troy ounce, and also to sell gold at the same rate for use in the industries, professions or arts, and for export to foreign central banks whenever exchange rates reached gold export points.

The American dollar depreciated on the foreign exchange markets after April, 1933, when an embargo was placed on gold exports. On Jan. 31, 1934, the French gold franc was quoted at 6.26 cents in American money. The new parity of the French franc is 6.63 American cents. By Feb. 13 the French franc rose to 6.52 cents, and during the latter months of the year quotations were in the neighborhood of the legal parities. As a consequence of the revaluation, monetary gold in the United States increased by $2,808,000,000. Of this increment due to devaluation, $2,000,000,000 was transferred to the Stabilization Fund authorized by the Act, and the remaining $808,000,000, although placed in the Treasury general fund balance, was segregated from the working balance.

Subsequently gold began to come to the United States from other countries and net imports by the end of October were in excess of $1,130,000,000.

SILVER PURCHASE ACT OF 1934

On June 19 the Silver Purchase Act of 1934 was approved by the President. This Act declared it to be the policy of the United States to increase the proportion of silver in its monetary stocks with the ultimate objective of having and maintaining one-fourth of their monetary value in silver and three-fourths in gold, and the Treasury was authorized and directed to purchase silver at home or abroad to achieve this end. The President was also authorized by executive order to require the delivery of all silver to the United States in exchange for coin or currency. The President exercised this authority in his proclamation of Aug. 9.

REGULATIONS UNDER THE SECURITIES EXCHANGE ACT

In accordance with the requirements of the Securities Exchange Act of 1934, the Federal Reserve Board issued, Sept. 27, Regulation T concerning the extension and maintenance of credit by brokers, dealers, and members of national securities exchanges. This regulation prescribes rules regarding the amount of credit which may be initially extended and subsequently maintained for the purpose of purchasing or carrying securities, but it places no restrictions on the amount of credit which may be extended or maintained for any other purpose.

In prescribing rules for an initial extension of credit the Board has adopted in its regulation the formula stated in the Act which provides, in effect, that a broker may lend not more than between 55 and 75 per cent of the market value of the registered securities which his customer holds as collateral, or conversely, that he must require a minimum margin of from 25 to 45 per cent of that market value, with certain prescribed exceptions. The 25 per cent margin requirement now applies to any security which is selling relatively close to the lowest price at which it has sold since July 1, 1933; the higher requirements apply to securities which have had greater advances in price. The rules of the Board relating to the maintenance of credit do not require a broker to sell securities in a customer's account. If, however, the margin is less than would be required if the existing credit were being initially extended, restrictions are placed on the transactions which the broker may permit in the account.

Restrictions to be imposed under the Securities Exchange Act of 1934 on security loans by banks are being studied by the Board in connection with other laws regulating the activities of banks, with a view to the issuance of regulations on this subject at a later date.

INDUSTRIAL ADVANCES

By an act approved June 19, 1934, Congress granted the Federal Reserve banks broad powers to enable them to provide working capital to established industrial and commercial businesses either through the medium of other banks, trust companies, or financial institutions, or, in exceptional circumstances, directly to such commercial and industrial businesses. The Federal Reserve banks were authorized to have outstanding such loans in an aggregate amount not exceeding approximately $280,000,000. The maturity of the loans may not exceed 5 years, and the financing institution must assume at least 20 per cent of the risk of any loss that may occur when the loans are made through such financing institution. This legislation grew out of a recognition of the fact that small industries had found it difficult to obtain their requirements of working capital through the capital market because commercial banks and other financial institutions in many cases were hesitant about undertaking on their single responsibility the risks involved in making relatively long time loans for working capital purposes.

Advances unconditionally approved by the Federal Reserve banks for the purpose of supplying working capital to industrial and commercial establishments together with commitments to make such advances numbered 713 and totaled $35,054,000 up to Dec. 26, 1934. Included in this amount were $13,589,000 of outstanding advances, $8,225,000 of commitments outstanding, and $8,761,000 of advances and commitments that had been approved by the Federal Reserve banks and were in process of completion.

OTHER LEGISLATION

Authority to use United States Government obligations as collateral against Federal Reserve notes outstanding was extended by the law of March 6, 1934. This authority was originally granted by the Glass-Steagall Act of Feb. 27, 1932, was later extended for another year, and was then extended for one more year with authority in the President to extend it for an additional period not exceeding two years.

Another emergency power of the Reserve banks contained in the Glass-Steagall Act was to make advances to individual member banks in unusual and exigent circumstances on paper that would not be eligible for discount under the permanent provisions of the Reserve Act. Under the terms of the Glass-Steagall Act this power also was limited to one year, but subsequently it was extended for another year with authority in the President for a further one year extension. Such additional period was prescribed by the President in a proclamation of Feb. 16, 1934.

An amendment to Section 24 of the Federal Reserve Act, approved June 27, 1934, exempts from certain limitations usually imposed upon real estate loans made by national banks such loans as are insured under the terms of the National Housing Act. In addition, certain short-term construction loans were made eligible for rediscount under specified conditions.

The Federal Reserve banks were authorized by legislation passed during the year to buy and sell in the open market and accept as security for advances to member banks bonds issued under the Federal Farm Mortgage Act and Home Owners' Loan Act, which are fully guaranteed as to principal and interest by the United States Government. The Federal Reserve banks were also authorized to act, with the approval of the Secretary of the Treasury, as fiscal agents for the Home Owners' Loan Corporation and, as depositories of the Federal Savings and Loan Insurance Corporation.

MEMBER BANK RESERVES

The policy of monetary ease maintained throughout the year was reflected in holdings by member banks of reserve balances in excess of legal requirements. From the end of January to the latter part of August member bank reserves increased from $2,700,000,000 to $4,100,000,000, a growth of nearly $1,400,000,000. This growth reflected primarily imports of gold from abroad and the expenditure of cash holdings by the Treasury. Reserve requirements of the member banks increased by nearly $300,000,000 between January and August, and excess reserves, which were around $800,000,000 at the close of January, rose to over $1,900,000,000 in August.

Early in September excess reserves declined to about $1,750,000,000 and continued at that level during October, reflecting a seasonal growth of money in circulation, a further increase in required reserves, and some increase in Treasury deposits with the Federal Reserve banks. In the first three weeks of November, however, member bank reserves showed an increase of $190,000,000, resulting principally from large gold imports and a decrease in Treasury deposits at Reserve banks. As a consequence of these changes, reserves increased to nearly $4,200,000,000 and excess reserves again exceeded $1,900,000,000.

A small but cumulatively substantial source of reserve funds in the last half of the year was the issuance of silver certificates by the Treasury. From July 31 to Nov. 21 the amount of these certificates outstanding outside the Treasury increased by nearly $150,000,000. The certificates were either paid out directly by the Treasury or were turned over to Federal Reserve banks to increase the Treasury deposit balances from which current payments were made. To the extent that these certificates issued did not replace other Treasury currency, they were added to member bank reserve balances.

BALANCE SHEET OF THE TWELVE FEDERAL RESERVE BANKS

ASSETS	Dec. 26, 1934 (in thousands of dollars)	LIABILITIES	Dec. 26 1934 (in thousands of dollars)
Gold certificates on hand and due from U. S. Treasury	$5,122,396	F. R. notes in actual circulation	$3,261,403
Gold	....	F. R. bank note circulation—net	26.603
Redemption fund—F. R. notes	18,952	Deposits:	
Other cash	213,622	Member bank—reserve account	3,961,204
		U. S. Treasurer—general account	168,114
Total reserves	$5,354,970	Foreign bank	19,582
Redemption fund—F. R. bank notes	1,677	Other deposits	168.016
Bills discounted:			
Secured by U. S. Gov't obligations, direct and/or fully guaranteed	4,820	Total deposits	$4,316,916
Other bills discounted	4,461	Deferred availability items	441,843
		Capital paid in	146,372
Total bills discounted	$9.281	Surplus (Section 7)	138,383
Bills bought in open market	5,611	Surplus (Section 13 b)	6.459
Industrial advances	13.589	Reserve for contingencies	22.272
U. S. Government securities:		All other liabilities	26,682
Bonds	395,582	TOTAL LIABILITIES	$8,387,313
Treasury notes	1,507,141	Ratio of total reserves to deposit and F. R. note liabilities combined	70.7%
Certificates and bills	527,475	Contingent liability on bills purchased for foreign correspondents	675
Total U. S. Government securities	$2,430.198	Commitments to make industrial advances	8,225
Total bills and securities	$2,458,679		
Due from foreign banks	804		
F. R. notes of other banks	22,614		
Uncollected items	452,135		
Bank premises	53,372		
All other assets	43,064		
TOTAL ASSETS	$8,387,513		

MONEY RATES

The easy credit conditions during the year were reflected in the extremely low levels of short-term money rates which prevailed. At the end of 1933, the rates were already low, but in February the Federal Reserve Bank of New York reduced its rediscount rate to 1½ per cent, and at the other banks the rate during the year was lowered to 2, 2½, or 3 per cent. The prevailing rate on prime commercial paper, 4 to 6 months, was 1¼—1½ per cent in January, but by June it was as low as ¾—1 per cent, at which level it remained until the end of the year. The call loan rate at the New York Stock Exchange was at a level of 1 per cent throughout the 12 months. Rates charged customers by banks in principal cities also reflected the easing tendency. This was not only true in the large money market centers but in southern and western cities as well. By the third quarter of the year the average of prevailing rates in the southern and western cities was at a level of about 5 per cent as compared with 5½ per cent in 1933. During the autumn, 182-day

Treasury bills were selling on a yield basis of about one quarter of 1 per cent, and for a number of weeks during the late spring and early summer the yield was much below this level. During 1934 the clearing houses in many cities reduced the rate payable by banks on time and savings funds to levels of 2½ per cent and below.

GROWTH OF BANK DEPOSITS

There was a large increase in deposits at member banks of the Federal Reserve System during the year, reflecting in part accessions to active membership. On the basis of reserve computations for November, 1934, net demand and time deposits for all member banks aggregated $28,364,000,000, representing a growth of $4,878,000,000 over November, 1933. This growth of nearly 21 per cent was accounted for by increases of $4,177,000,000 in net demand deposits and $701,000,000 in time deposits, as the following tabulation shows.

DEPOSITS AT ALL LICENSED MEMBER BANKS
(Averages of daily figures Amounts in millions of dollars.)

	November, 1934	Change from November, 1933	
		Amount	Per Cent
Net demand deposits	18,524	+4,177	+29.1
Time deposits	9,840	+701	+7.7
Net demand and time deposits	28,364	+4,875	+20.3

Active banks outside the Federal Reserve System, exclusive of mutual savings banks, numbered 8,798 on Dec. 26 and the deposits of these banks amounted to approximately $5,000,000,000 on Dec. 31, 1933, the latest figure available.

PORTFOLIO CHANGES

Condition reports of member banks for Oct. 17 showed aggregate loans and investments of $27,596,000,000, an increase of $2,706,000,000 in a twelve-month period. Investments increased by $3,373,000,000, while loans decreased by $766,000,000. Holdings of direct and fully guaranteed obligations of the United States Government were larger by $3,094,000,000 and increases occurred in other securities and open-market loans, particularly loans to brokers and dealers in New York and commercial paper. Loans to banks were reduced by about one-half and loans to other customers decreased.

Loans of country banks decreased somewhat and their investments increased by $796,000,000, chiefly in holdings of direct and guaranteed obligations of the United States Government.

BANKING REHABILITATION

On January 1, 1934, the temporary plan of deposit insurance administered by the Federal Deposit Insurance Corporation became effective, and all member banks of the Federal Reserve System which were licensed to operate on an unrestricted basis were required to participate in the insurance. Until July 1 funds of not more than $2,500 of each depositor in each insured bank were fully insured against loss. Legislation in June extended the temporary plan for another year but provided for coverage of each depositor up to $5,000. In addition to members of the Federal Reserve System 7,700 other banks were participating, while about 500 mutual savings and 1,200 other banks were not covered by Federal insurance on Sept. 1, 1934. Estimates indicated that 97 per cent of all depositors in insured banks were fully insured.

During the first eleven months of the year seven small banks participating in the insurance plan, one of which was a member of the Federal Reserve System, were closed, and insured deposits were promptly made available. Forty-six other licensed banks, which were not members of the insurance fund, failed during the year, involving in the aggregate deposits of about $35,000,000. In order to improve the condition of banks weakened by the deterioration of their assets during the years of the depression, the Reconstruction Finance Corporation during 1933 and 1934 had authorized investments of $1,200,000,000 in the capital structure of 6,700 banks. Outstanding investments of this character at the end of 1934 aggregated $938,000,000.

At the beginning of the year there were 6,011 licensed member banks in the Federal Reserve System and 512 unlicensed member banks with deposits of $527,854,000. By December 26, 1934, there were 6,450 licensed member banks, while unlicensed member banks had been reduced to 10 small banks. At this time there were 180 nonmember commercial banks which had not been licensed to operate on an unrestricted basis and their deposits aggregated $88,000,000. At the beginning of the year there were as many as 1,257 such banks with deposits of $497,000,000.

LOANS AND INVESTMENTS OF MEMBER BANKS

(In millions of dollars)

	All banks		Country banks	
	October 17, 1934	Change from October 25, 1933	October 17, 1934	Change from October 25, 1933
Loans to banks	149	−149	28	−7
Loans to other customers	10,782	−740	3,926	−248
Open-market loans	1,361	+122	150	+77
Total loans	12,292	−766	4,105	−178
Direct obligations of U. S. Gov.	9,186	+2,385	1,992	+400
Obligations fully guaranteed by U. S. Gov.	709	+709	215	+215
Other securities	5,372	+279*	2,337	+174
Total investments	15,267	+3,373	4,544	+796
Total loans and investments	27,559	+2,706	8,649	+618

* Included on October 25, 1933, a small amount of securities guaranteed by U. S. Government.

CHANGES IN PERSONNEL

On Dec. 13, 1933, William H. Woodin tendered his resignation as Secretary of the Treasury. The President accepted Mr. Woodin's resignation Jan. 1, 1934, and appointed as his successor Henry Morgenthau, Jr., who had been Under Secretary and Acting Secretary since Nov. 17, 1933. The Secretary of the Treasury is an *ex-officio* member and chairman of the Federal Reserve Board.

Eugene R. Black of Georgia, Governor of the Federal Reserve Board since May 19, 1933, tendered his resignation as member and Governor, which was accepted, Aug. 15, 1934. Mr. Black then resumed his position as Governor of the Federal Reserve Bank of Atlanta, replacing W. S. Johns, who had been Acting Governor since May, 1933. Mr. Black died on Dec. 19, 1934. J. J. Thomas of Nebraska, who has been a member of the Board since June 14, 1933, was designated Vice Governor on Aug. 21, 1934. Adolph C. Miller, now of the District of Columbia, whose term of office expired Aug. 9, 1934, was reappointed a member of the Board on Aug. 21, for a 12-year term beginning Aug. 10. Effective Oct. 30, 1934, H. Warner Martin resigned as Assistant to the Governor of the Federal Reserve Board. Mr. Martin had served in that position since Aug. 16, 1933. Lawrence Clayton was appointed on Dec. 1, 1934, to succeed Mr. Martin.

Effective Nov. 15, 1934, Marriner S. Eccles of Utah was appointed a member of the Federal Reserve Board and was designated as Governor of the Board to fill the vacancy created by Mr. Black's resignation.

On March 1, 1934, J. B. McDougal, after serving as Governor of the Federal Reserve Bank of Chicago since 1914, resigned, and G. J. Schaller, who had been Acting Governor since Jan. 1, 1934, was elected Governor. Isaac B. Newton, Chairman of the Federal Reserve Bank of San Francisco since 1926, died June 22, 1934. L. B. Williams resigned as chairman and Federal Reserve agent at the Federal Reserve Bank of Cleveland, Nov. 27, 1934. M. L. McClure, Chairman and Federal Reserve agent at the Federal Reserve Bank of Kansas City died, Dec. 5, 1934.

At the annual meeting of the Federal Advisory Council, which was held Feb. 20, 1934, Walter W. Smith was re-elected president and Howard A. Loeb was elected vice-president to succeed Melvin A. Traylor who died Feb. 14, 1934. These officers as *ex-officio* members and Messrs. Frew, McEldowney, Kemper, and Steele constitute the executive committee. Walter Lichtenstein was reappointed secretary.

FOREIGN EXCHANGE

By Marcus Nadler

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GENERAL

The foreign exchange market during 1934 was marked by an increased tendency towards stability of exchange rates, by the stabilization of the dollar, by the tremendous influx of gold into the United States and by the weakness at times in the currencies of the gold bloc countries. In general, exchange rates fluctuated much less widely in 1934 than in 1935. To a considerable extent this stability was the result of the organization of many of the world's currencies into groups, or "blocs," such as (a) the sterling bloc, (b) the gold bloc, (c) the dollar bloc, and (d) the group of countries which, through the adoption of rigid foreign exchange restrictions, have been able to maintain a fairly stable relationship between their currencies and gold.

THE STERLING BLOC

The sterling bloc comprises a number of countries whose currencies are more or less definitely pegged to the pound and which fluctuate in unison with the pound sterling. To this group belong Great Britain, the dominions and colonies with the exception of Canada but including Egypt and Palestine, and the Scandinavian countries including Finland. The relationship of the more important of these currencies to the pound sterling may be seen from the table (page 353).

The stability of these exchanges reflects not only the ability of the various countries to control the external value of their currencies but also reflects in some cases the willingness of Great Britain to support the exchanges of sterling bloc countries wherever necessary. Thus during 1934 the British embargo on foreign loans was modified to make it possible for countries adhering to the sterling bloc to obtain long-term loans in Great Britain. The sterling bloc operates along essentially the same lines as the gold standard with the exception that, instead of the currencies being pegged to gold and their stability maintained through gold movements, they are pegged to the pound sterling and stability is maintained through the purchase and sale of sterling balances in London.

LONDON EXCHANGE RATES FOR STERLING BLOC CURRENCIES

1934	South Africa (South African Pounds per £100 Sterling)	Australia (Australian Pounds per £100 Sterling)	New Zealand (New Zealand Pounds per £100 Sterling)	Stockholm (Kr. per £)	Copenhagen (Kr. per £)	Helsingfors (F. Mk. per £)	Oslo (Kr. per £)
Jan.......	99.875	125.000	124.500	19.39	22.39	226.5	19.91
Feb.......	99.875	125.000	124.500	19.39	22.39	226.5	19.90
Mar.......	99.875	125.000	124.500	19.39	22.39	226.5	19.90
Apr.......	99.875	125.000	124.500	19.40	22.39	226.5	19.91
May......	99.875	125.000	124.500	19.40	22.39	226.5	19.91
June......	99.875	125.000	124.500	19.40	22.39	226.5	19.91
July......	100.000	125.000	124.481	19.40	22.39	226.5	19.90
Aug.......	100.125	125.000	124.000	19.39	22.39	226.5	19.90
Sept.......	....	125.000	124.000	19.39	22.40	226.5	19.90

THE GOLD BLOC

The gold bloc embraces those countries which have adhered to the gold standard and abstained from imposing foreign exchange restrictions. It includes France, Holland, Switzerland, Belgium and Luxembourg, and Poland. The exchanges of these countries have moved during the past year more or less within the gold points but at times exchange stability has been maintained only through the exportation of large quantities of gold. Thus from Jan. 12 to March 2, 1934, the Bank of France lost about $221,000,000 of gold. During the spring and summer most of this gold was regained but toward the end of the year the weakness in the gold bloc currencies resulted in another outflow of gold, this time not only from France but also from Belgium and from the other countries.

Realizing the keen economic competition from the countries with depreciated currencies with which they must contend, the gold bloc countries called a conference in Brussels on Oct. 19, 1934, for the purpose of adopting measures of economic cooperation. Machinery was set up for the negotiation of special trade agreements among themselves and for formulating measures of mutual support in the sphere of currency and finance. However, the results of the conference have so far not been very encouraging, and the outlook for the gold bloc currencies is doubtful. In some of these countries there is strong sentiment for the devaluation of the currency in order to overcome their disadvantage in competing in foreign markets with the countries which have depreciated their currencies.

As regards the prospects of devaluation the gold bloc currencies may be divided into two groups: (a) those which devalued their currency after the war and (b) those which still adhere to their pre-war parity. To the former group belong France, Belgium and Poland. In these countries there is strong opposition to devaluation by the middle class which have already suffered material losses from the previous devaluation. On the other hand, the exporters and industrialists who feel most severely the competition from abroad are in favor of currency devaluation. In the second group, consisting of Holland and Switzerland, the movement for devaluation is growing. It is particularly pronounced in Holland where the difficulties are further aggravated by the fact that the Netherlands East Indies, which is a raw material and agricultural producing area, are under a serious handicap in competing with the countries with depreciated currencies.

What the future of the gold bloc currencies will be is of course difficult to predict. However, there is a growing feeling in most of those countries that the gold value of their currencies must be reduced in some manner or other. Although some groups of the population favor an immediate devaluation, the majority believe that the most opportune time for a devaluation will be when all the leading currencies of the world are stabilized on a gold basis because under such circumstances it is believed that a change in the currency unit would not undermine confidence within the country and cause an outflow of capital. The ability of the gold bloc countries to maintain the stability of their currency depends to a considerable extent upon the future movement of the pound and of the dollar. If these currencies remain stable no immediate action is anticipated. If, on the other hand, the pound and the dollar should further depreciate, it is believed that some of the gold bloc countries may also devalue their currencies by independent action.

EXCHANGE RATES FOR GOLD BLOC CURRENCIES

(Monthly average of daily quotations in New York City in cents per unit of foreign currency)

1932	France (Franc)	Belgium (Belga)	Holland (Florin)	Switzerland (Franc)	Poland (Zloty)
January	6.21	22.04	63.62	30.64	17.93
February	6.46	22.89	66.04	31.79	18.60
March	6.58	23.30	67.30	32.29	18.90
April	6.62	23.44	67.85	32.46	18.96
May	6.61	23.41	67.91	32.53	18.95
June	6.60	23.36	67.81	32.50	18.89
July	6.59	23.36	67.76	32.58	18.89
August	6.66	23.71	68.38	32.95	19.08
September	6.67	23.73	68.57	33.02	19.14
October	6.62	23.46	68.09	32.77	19.01
November	6.59	23.32	67.60	32.47	18.90

THE DOLLAR BLOC

Although not generally recognized as such, there is in actual practice a dollar bloc which includes, in addition to the United States, Canada, Cuba and such Central American countries as Guatemala and Costa Rica. These currencies have remained relatively stable in relation to the dollar during the past year. The movement of exchange rates for the Canadian dollar and the Cuban peso in relation to the United States dollar is shown in the following table:

EXCHANGE RATES ON CANADA AND CUBA

(Monthly averages of daily quotations in New York City in cents per unit of foreign currency)

1934	Canada (Dollar)	Cuba (Peso)
January	99.52	99.96
February	99.17	99.96
March	99.79	99.95
April	100.21	99.93
May	100.19	99.93
June	100.79	99.97
July	101.20	99.94
August	102.38	99.93
September	102.94	99.92
October	102.12	99.92
November	102.47	99.92

On Jan. 30, 1934 the dollar was legally devalued by reducing the gold content from 25 8/10 grains, nine-tenths fine, to 15 5/21 grains, nine-tenths fine, making an ounce of gold worth $35 as compared with $20.67 prior to devaluation. The President, however, was given the power to further reduce the gold content by 10 per cent. Coincident with the devaluation of the dollar a stabilization fund of $2,000,000,000 was established for the purpose of maintaining the stability of the United States currency. When the stabilization fund was established it was generally believed that its chief purpose would be to prevent an inflow of gold into the United States. There was no danger of any appreciable outflow of gold because of the favorable balance of payments position of the United States. On the other hand, it is feared that with the stabilization of the dollar, the repatriation of American capital previously placed abroad plus the influx of additional foreign capital would bring about a large influx of gold. However, from its creation up to the middle of October, 1934, the stabilization fund was more or less inactive.

As the repatriation of American capital set in, the dollar was quoted above par in the world's markets, thereby resulting in a large influx of gold into the United States which the stabilization fund did not attempt to prevent. The movement of gold into this country from Feb. 1 to the end of October may be seen from the following table:

NET GOLD IMPORTS INTO THE UNITED STATES

(In thousands of dollars)

1934	
February	$452,571
March	237,336
April	54,748
May	33,583
June	63,705
July	53,346
August	37,225
September	[1]18,670
October	10,837
November	[2]140,000

[1] Net export of gold.
[2] Approximate figure.

However, in October, 1934, when weakness developed in the gold bloc currencies, the stabilization fund intervened and, through the purchase of gold, supported the French franc as well as the Belgium belga. The amount of gold acquired by the stabilization fund is of course unknown, but estimates have placed the total well above $50,000,000. Although the President has the power to devalue the dollar by an additional 10 per cent it is not generally expected that the action will be taken. In the first place, experience has proven that in the United States there is no definite relationship between the value of the dollar expressed in terms of gold and the movement of commodity prices, with the exception of those few commodities which enter largely into the foreign trade of the country. Secondly, it is only too well known that a new devaluation of the dollar would result in a further depreciation of the pound sterling, which in turn would undoubtedly have adverse effects on the gold bloc currencies. The abandonment of the gold standard by the latter, it is generally recognized, would create chaotic currency conditions. For this reason it is generally anticipated that the dollar will remain at its present parity until final stabilization takes place when minor changes in the parity of the United States currency may be made.

COUNTRIES WITH FOREIGN EXCHANGE RESTRICTIONS

To this group belong a large number of countries whose currencies are linked nominally to gold but which actually are off the gold standard in that all transactions in foreign exchange are subject to the rigid control of the government. In a number of these countries, and particularly in Germany, there are blocked currencies which sell in the exchange markets at substantial discounts from par, amounting in some cases to more than 50 per cent. The outstanding development in the countries with foreign exchange restrictions was the devaluation of the Czech crown which was devalued on Feb. 17, 1934, by 16⅔ per cent.

Foreign exchange restrictions as they exist at the present time in a number of European and South American countries not only have a definite bearing on the movement of exchange rates but also are an important factor in the movement of trade. Since all foreign exchange restrictions are concentrated in the hands of the governmental authorities the latter are able to exercise considerable control over imports through the power of allocating foreign exchange. For example, the Reichsbank, by refusing foreign exchange for the importation of automobiles, has practically eliminated German purchases of automobiles from the United States.

The multiplicity of foreign exchange restrictions has resulted in the establishment of clearing and compensation agreements which, while permitting bilateral trade between the countries concerned, are dangerous in that they restrict the normal flow of trade and drive it into unnatural and uneconomic channels. In spite of their shortcomings and in spite of the adverse effect which they have on world trade in general, compensation and clearing agreements have at least enabled some countries to make a breach in the wall of exchange restrictions through which a foreign trade may move. They have also made possible the liquidation of some of the frozen funds which have been accumulated as a result of foreign exchange restrictions and have enabled some creditor countries such as Holland, Switzerland, England and France to collect interest on the obligations of debtor countries held by their nationals. By the end of 1934 a considerable portion of the frozen credits, particularly in South America, had been liquidated. This, coupled with the establishment of compensation and clearing arrangements and the improvement in foreign trade, has made it possible for some countries to relax their exchange restrictions. As trade improves and as the foreign credits are further liquidated it is expected that gradually the foreign exchange restrictions will be further modified and in some cases entirely abolished.

THE OUTLOOK

There is little indication of any radical developments in the foreign exchanges during 1935, except for the possibility that some of the gold bloc countries may abandon the gold standard or devalue their currencies. A fairly stable relationship has already been established betwen the currencies now off the gold standard and between these currencies and gold. It would, however, be too optimistic to expect the legal stabilization on a large scale of the leading non-gold standard currencies. Such a stabilization can take place only after a number of problems, among them the war debts, the trade policy of the United States, and the political situation in several countries, have been cleared up. The outlook for 1935 therefore is for relatively stable currencies without legal stabilization.

FOREIGN TRADE

By Roland L. Kramer

Professor, University of Pennsylvania

FOREIGN TRADE GAIN IN 1933

Foreign trade of the United States for the calendar year 1933 reversed the downward movement of the preceding depression years, and recorded a slight increase over the figures for 1932. Total foreign trade in 1933 was valued at $3,125,000,000 compared with $2,934,000,000 in 1932. The improvement shown for the year was occasioned by the accelerated trade movement following the gold embargo of April 20th. Up to that date, foreign trade continued to decline, but for the last three quarters of 1933, both exports and imports showed substantial improvement. Export trade, including reexports, increased in value by 4 per cent, and was recorded at $1,675,000,000, while imports registered a gain of 9.6 per cent, and were valued at $1,450,000,000. The Department of Commerce estimates that export prices advanced during the year to an extent sufficient to offset the dollar gains in export trade, indicating substantially the same volume of exports in 1933 as in 1932. With imports, however, prices averaged approximately the same as in the preceding year; hence the value gain of 9.6 per cent also measures the increase in the volume of import trade.

FOREIGN TRADE GAIN FOR NINE MONTHS OF 1934

The expansion in foreign trade that carried through the last three quarters of the year 1933, continued with augmented acceleration until the early summer of 1934. For nine months of 1934 compared with a like period of 1933, total exports showed a gain of 41.3 per cent and general imports an increase of 17.8 per cent. For each of the nine months of 1934, exports exceeded the figures of the corresponding month of 1933 by percentages ranging from 12.2 per cent in July to 76.7 per cent in March. The October improvement was approximately 7 per cent, the smallest increase up to that month. Imports fell off somewhat in June to an increase of 10.6 per cent after having reached an expansion of 61.4 per cent in March. In July and August, imports were below the figures of the corresponding month of 1933 but in September they showed a small improvement. In October they again fell off.

The expansion in exports is traceable primarily to gains in shipments of manufactures, both finished and semi-finished, and of crude foodstuffs. Automobiles and machinery showed a large gain as did leaf tobacco, crude petroleum, copper and iron and steel. Wheat exports were up 432 per cent over the nine-month period of 1933. Of all commodities with an export value of $5,000,000 or more, lard alone showed a decline in value.

In imports, the gain in manufactured foodstuffs was most notable at 30 per cent and crude materials at 20 per cent. Receipts of crude rubber, wines and liquors, crude petroleum, copper, chemicals and wheat were greatly expanded.

Increases in exports were distributed over all continents, averaging over 50 per cent for North America, Asia and South America, 80 per cent for Oceania, over 100 per cent for Africa and 28 per cent for Europe. Shipments to Canada, British South Africa, Australia and Cuba showed particular improvement. On the import side, the greatest expansion occurred in receipts from Asia and Africa, with gains of 26 per cent each. North America was up 20 per cent and South America 14 per cent. Substantial increases appeared in imports from Canada, British Malaya, India, Chile, Venezuela and Egypt.

EXPORTS, IMPORTS, AND BALANCE OF TRADE OF THE UNITED STATES

[Values in millions of dollars. Data for 1910-14 cover years ended June 30; thereafter, calendar years]

Yearly average or year	Merchandise					Excess of exports (+) or imports (−)			
	Exports			General imports	Per-cent imports were of exports	Merchandise	Gold	Silver	Merchandise, gold, and silver
	Total	United States merchandise	Re-exports of foreign merchandise						
1910-14	2,166	2,130	35	1,689	78.0	+477	+17	+20	+515
1921	4,485	4,379	106	2,509	55.9	+1,976	−667	−12	+1,297
1922	3,832	3,765	67	3,113	81.2	+719	−238	−8	+473
1923	4,167	4,091	77	3,792	91.0	+375	−294	−2	+79
1924	4,591	4,498	93	3,610	78.6	+981	−258	+36	+759
1925	4,910	4,819	91	4,227	86.1	+683	+134	+35	+852
1926	4,809	4,712	97	4,431	92.1	+378	−98	+23	+303
1927	4,865	4,759	107	4,185	86.0	+681	−6	+21	+695
1928	5,128	5,030	98	4,091	79.8	+1,037	+392	+19	+1,448
1929	5,241	5,157	84	4,399	83.9	+842	−175	+19	+686
1930	3,843	3,781	62	3,061	79.6	+782	−280	+11	+514
1931	2,424	2,378	46	2,091	86.2	+334	−145	−2	+186
1932	1,611	1,576	35	1,323	82.1	+288	+446	−6	+729
1933	1,675	1,647	28	1,450	86.5	+225	+173	−41	+358

FOREIGN TRADE IN MERCHANDISE, BY ECONOMIC CLASSES

[Values in millions of dollars. Data for 1910-14 cover years ended June 30, all other are for calendar years]

Yearly average or year	Total value	Crude materials		Crude foodstuffs		Manufactured foodstuffs		Semi-manufactures		Finished manufactures	
		Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent	Value	Per cent
EXPORTS OF UNITED STATES MERCHANDISE											
1910–14.....	2,130	713	33.5	127	5.9	295	13.8	342	16.0	654	30.7
1921........	4,379	984	22.5	673	15.4	685	15.7	410	9.4	1,627	37.1
1922........	3,765	988	26.3	459	12.2	588	15.6	438	11.6	1,292	34.3
1923........	4,091	1,208	29.5	257	6.3	583	14.3	564	13.8	1,478	36.1
1924........	4,498	1,333	29.6	393	8.7	573	12.8	611	13.6	1,588	35.3
1925........	4,819	1,422	29.5	318	6.6	574	11.9	662	13.7	1,843	38.3
1926........	4,712	1,261	26.8	335	7.1	503	10.7	656	13.9	1,957	41.5
1927........	4,759	1,193	25.1	421	8.8	463	9.7	700	14.7	1,982	41.6
1928........	5,030	1,293	25.7	295	5.9	466	9.3	716	14.2	2,260	44.9
1929........	5,157	1,142	22.2	270	5.2	484	9.4	729	14.1	2,532	49.1
1930........	3,781	829	21.9	179	4.7	363	9.6	513	13.6	1,898	50.2
1931........	2,378	567	23.8	127	5.3	247	10.4	318	13.4	1,120	47.1
1932........	1,576	514	32.6	89	5.7	152	9.7	197	12.5	624	39.6
1933........	1,647	591	35.9	48	2.9	155	9.4	237	14.4	617	37.4
GENERAL IMPORTS											
1910–14.....	1,689	595	35.2	203	12.0	194	11.5	307	18.2	389	23.1
1921........	2,509	859	34.2	300	12.0	368	14.7	362	14.4	620	24.7
1922........	3,113	1,180	37.9	330	10.6	387	12.4	553	17.8	663	21.3
1923........	3,792	1,407	37.1	363	9.6	530	14.0	721	19.0	771	20.3
1924........	3,610	1,258	34.9	425	11.8	522	14.4	665	18.2	749	20.8
1925........	4,227	1,748	41.4	495	11.7	433	10.2	755	17.9	796	18.8
1926........	4,431	1,793	40.5	540	12.2	418	9.4	804	18.1	877	19.8
1927........	4,185	1,601	38.3	505	12.1	451	10.8	750	17.9	879	21.0
1928........	4,091	1,467	35.8	550	13.4	406	9.9	763	18.6	906	22.2
1929........	4,399	1,559	35.4	539	12.2	424	9.6	885	20.2	994	22.6
1930........	3,061	1,002	32.7	400	13.1	293	9.6	608	19.9	757	24.7
1931........	2,091	642	30.7	305	14.6	222	10.7	372	17.8	549	26.3
1932........	1,323	358	27.1	233	17.6	174	13.1	217	16.4	341	25.7
1933........	1,450	418	28.8	212	14.6	205	14.2	292	20.1	322	22.2

BALANCE OF TRADE IN GOLD AND SILVER

Exports in 1933 exceeded imports by the amount of $225,000,000—a so-called ‘‘favorable’’ balance of trade. Gold exports exceeded gold imports by $173,000,000. This figure is much smaller than net gold shipments recorded in 1932. After February and March of 1933, every month showed a net export of gold. The bulk of the gold movements of the year represented changes in the earmarking of gold already in this country, thus necessitating the actual movement of only a relatively small quantity of the metal. Silver continued to show an import balance, amounting in 1933 to more than $41,000,000.

COMMODITY CHARACTER OF EXPORT TRADE

Finished manufactures continued the leading group of exports, comprising 37.4 per cent of the total compared with 39.6 per cent in the preceding year. As the unit value index of commodities in this group was somewhat lower while the quantity index remained stationary, exports of finished manufactures registered a decline in value from $624,000,000 in

1932 to $617,000,000. This downward tendency was decidedly reversed in 1934, the first nine months of which showed increases in exports of finished manufactures of 55.7 per cent in value and of 38 per cent in quantity compared with the corresponding period of 1932.

Refined petroleum products again held first place in the group of finished manufactures and second in the entire list of export commodities. Exports of refined petroleum products were valued at $151,300,000, a decline of 10 per cent from the 1932 figure, while the quantity exported was 61,000,000 barrels, a drop of 11.4 per cent. Shipments of lubricating oil reached a higher value than in 1932, but the value of gasoline and of illuminating oil exports was somewhat lower.

Machinery.—The third leading export commodity was machinery with a value of $132,500,000. This figure represents a slight increase of .7 per cent over the preceding year. Industrial machinery, the largest item in the class, registered a decline of 5.5 per cent to a value of $55,300,000. Electrical machinery and apparatus showed a small increase of 1.3 per cent and was valued at $43,600,000. An increase of 15.8 per cent occurred in exports of agricultural machinery and implements with a value of $12,200,000.

Automobiles.—Third in the group of finished manufactures and fourth in the entire commodity list was automobiles, parts and accessories, with an increase of 18.9 per cent over 1932, the value being $90,600,000. While shipments of automobile parts registered a decline, the value of motor trucks, buses and chassis exported was nearly double the 1932 figure and were recorded at $20,113,000. Passenger cars and chassis showed a 40 per cent increase, exports being valued at $32,100,000. Automobile casings, at $9,000,000, recorded an advance of 15.9 per cent in value and of 16.5 per cent in quantity.

Cotton, Steel, etc.—Shipments of cotton manufactures continued to decline, the 1933 value of $39,400,000 being 13.6 per cent below the preceding year. The quantity of exports of cotton cloth, duck and tire fabric was 19.6 per cent less. Iron and steel advanced manufactures, at $20,000,000, showed a slight increase over the preceding year, while shipments of rubber manufactures registered an improvement of 8.9 per cent, the export value being $17,800,000.

Photographic and projection goods declined 7.4 per cent to a value of $12,500,000, and books and printed matter were off 8.5 per cent to $11,400,000. Advanced wood manufactures, at $11,600,000, showed an increase of 18.3 per cent.

Crude Materials.—The second largest commodity group of exports, crude materials, recorded an advance of 15.0 per cent and accounted for 35.9 per cent of total exports. This group comprised a greater share of total exports than it comprised in the prewar period 1910-14. Two-thirds of the crude materials group was composed of unmanufactured cotton. ''King Cotton'', still the leading export commodity, accounted for 24.2 per cent of the total value of exports from the United States. The quantity of cotton shipped abroad was 5.9 per cent below the 1932 tonnage, but an improvement in the price of cotton resulted in an export value of $398,200,000, an increase of 15.4 per cent over the preceding year. Shipments of unmanufactured tobacco advanced 6.8 per cent in quantity and, with the aid of higher prices, recorded a 25.8 per cent increase in the value of $82,900,000. Exports of coal and coke showed a slight reduction in quantity and were off 9.3 per cent in value, to $40,400,000. Crude petroleum shipments registered a decided improvement, being greater in quantity by 33.6 per cent and in value by 18.0 per cent. Exports of crude petroleum were recorded at $32,000,000.

Semi-manufactures, the third largest group of exports, showed an increase of 20.5 per cent over the preceding year. This was the largest improvement of any of the export groups. Semi-manufactures comprised 14.4 per cent of total exports. Chemicals and related products, some of which are finished manufactures, advanced 9 per cent compared with 1932 and recorded a value of $76,800,000. Iron and steel-mill products registered the greatest relative gain of any of the leading commodity exports. The tonnage of iron and steel shipments was 125.4 per cent in excess of the preceding year and the value of $45,500,000 represented an increase of 57.8 per cent. Sawmill products, principally boards and timber advanced 12.0 per cent in quantity and 23.0 per cent in value, to $32,300,000. Shipments of copper were up 6.4 per cent in tonnage and 17.3 per cent in value to $24,900,000. Exports of furs and manufactures advanced 13.3 per cent and registered a value of $15,300,000. Naval stores, gums and resins registered a gain of 27.0 per cent and were recorded at $14,700,000. Paper and manufactures at $14,600,000 declined 4.8 per cent from the preceding year. Exports of leather were practically unchanged at $13,800,000.

Manufactured foodstuffs, with 9.4 per cent of total exports, were substantially the same in dollar value as in the preceding year. Packing-house products, the leading item in the group, were valued at $65,800,000, an improvement of nearly 16 per cent and in quantity, of 9.4 per cent. Shipments of lard at $34,100,000 advanced 6.9 per cent in value and 6.0 per cent in quantity. Meat products showed an improvement of 34.5 per cent in dollars, 21.2 per cent in tonnage and recorded a value of $25,500,000. Canned fruits, with a value of $17,100,000, were practically unchanged from the preceding year. Shipments of wheat flour declined 30 per cent in quantity and 25 per cent in value to $13,800,000.

Crude foodstuffs declined 45.9 per cent, the largest percentage change in the value of any of the commodity groups, either export or import. As a result of this drastic reduction, crude foodstuff exports were 2.9 per cent of the total, compared with 5.7 per cent in 1932. Fruits and nuts, comprising dried and evaporated, as well as fresh, declined 13.3 per cent. Fresh apples suffered a reduction of 34.8 per cent in quantity and 41.6 per cent in value, registering $13,100,000. Dried and evaporated fruits, with a shrinkage of 5.6 per cent in tonnage but an increase of 11.6 per cent in value, were recorded at $21,800,000. Exports of wheat, valued at only $4,800,000 were 85.5 per cent less in both quantity and value. In 1933, exports of wheat amounted to 8,000,000 bushels compared with 55,000,000 in the preceding year.

IMPORTS

Crude Materials. — With an increase of 16.7 per cent over the preceding year, crude material imports maintained the position of leading import commodity group, comprising 28.8 per cent of general imports. While last year raw silk surrendered its supremacy among all import commodities, in 1933, silk fell still further to third place in the list of imports. Receipts of raw silk registered a decline of 9.2 per cent in quantity and of 10.0 per cent in value to $102,500,000. Crude rubber imports, with an increase of 1.0 per cent in quantity and a higher unit price, advanced 41.0 per cent to a value of $45,900,000. Receipts of hides and skins gained 78.7 per cent in quantity and 103.1 per cent in value, to $45,700,000. Imports of oilseeds expanded 54.8 per cent in quantity and, with a reported value of $26,700,000, an advance of 61.9 per cent. Flaxseed alone increased 74.6 per cent in quantity and 161.7 per cent in value to $13,500,000. Unmanufactured tobacco, with no change in quantity, declined 6.6 per cent in value to $21,500,000. Wool and mohair imports also valued at $21,500,000, expanded 216.5 per cent in quantity and 255.9 per cent in value. Purchases of crude petroleum declined 28.6 per cent in tonnage and 41.8 per cent in value to $17,700,000.

Finished Manufactures.—Imports of finished manufactures were 5.4 per cent lower and comprised 22.2 per cent of general imports. Paper and manufactures led with $77,400,000, a decline of 17.7 per cent. Newsprint, the leading item in the paper group, was unchanged as to quantity but the value of $68,500,000 represented a reduction of 19.2 per cent from the preceding year. Cotton manufactures, including yarns, registered an improvement of 14.8 per cent and a value of $32,000,000. While an important item last year, advanced and refined petroleum products declined 53.7 per cent in tonnage and 75.3 per cent in value to $7,200,000. Imports of burlaps, with an improvement of 17.8 per cent in quantity and of 44.5 per cent in value were recorded at $24,400,000. Manufactures of vegetable fibres were $21,200,000, an increase of 6.8 per cent. Wool manufactures, including yarns, were recorded at $16,300,000, an increase of 28.2 per cent. Imports of wine and spirits, with no reasonable basis for previous comparison, were valued at $12,500,000. Receipts of art works, at $15,900,000, were down 13.8 per cent from the preceding year.

Semi-manufactures regained third place in the import commodity groups, showing the largest change of any. Imports in this class increased 34.6 per cent compared with 1932 and comprised 20.1 per cent of general imports as against 16.4 per cent last year. Paper base stocks, principally wood pulp, increased 20 per cent, the value being $65,300,000. Receipts of wood pulp advanced 31 per cent in quantity and 22.3 per cent in value, to $57,400,000. Chemicals and related products expanded 25.3 per cent to $59,900,000. Fertilizers, leading item in the group, increased 38.1 per cent in tonnage and 31.5 per cent in value, and was recorded at $24,600,000. Imports of tin showed unusual improvement, with an expansion of 80.5 per cent in tonnage and of 210.7 per cent in value, the figure being $51,200,000. Undressed furs, registered an improvement of approximately 33 per cent and were recorded at $33,300,000. Expressed vegetable oils and fats, at $34,600,000, expanded 30.2 per cent in quantity and 18.4 per cent in value. Receipts of sawmill products advanced 12.5 per cent in value to $8,200,000, while sawed lumber and cabinet wood, off 5.7 per cent in quantity, improved 8.2 per cent to a value of $8,200,000. Diamonds, with an increase in quantity of 21.8 per cent and in value 8.4 per cent were recorded at $11,300,000. Imports of nickel expanded 148 per cent in tonnage and 128.9 per cent in value to $10,300,000.

Crude foodstuffs, with 14.6 per cent of general imports, represented a value 9.1 per cent below the preceding year, while manufactured foodstuffs, with 14.2 per cent of the total, showed an increase of 18.1 per cent over 1932. The two leading individual imported commodities were foodstuffs. Coffee, again the chief import, advanced 5.7 per cent in quantity but declined 9.3 per cent in value, to $124,100,000. The second leading import commodity, cane sugar, was off 3.3 per cent in tonnage but increased 11.3 per cent in value to $107,600,000. Fruits and nuts, at $37,400,000, were down 15.5 per cent from the value of the preceding year. Imports of fish, valued at $22,100,000, improved 8.6 per cent in quantity and 3.4 per cent in dollar measurement. Receipts of cocoa or cacao beans declined 1.1 per cent and were valued at $18,700,000, a recession of 4.8 per cent. Vegetables and preparations were down 7.2 per cent to $15,400,000; while receipts of tea, 2.0 per cent greater in quantity and 10.1 per cent in value, were valued at $13,700,000.

FOREIGN MARKETS

Europe.—Exports to all continental markets, with the exception of Northern North America, Oceania and, to an unappreciable extent, Asia, showed an expansion in value over the preceding year. Shipments to Europe, again the leading continental market, taking 50.7 per cent of total exports, evidenced an increase of 8.3 per cent. "The principal factor in the increase in value of exports to Europe was the advance in the price of raw cotton." The United Kingdom, with $311,700,000, was again the leading foreign market for American merchandise and advanced 8.1 per cent over the preceding year. All leading European markets, with the exception of the Soviet Union, showed an increase in the value of United States products purchased. Germany, with $140,000,000, an advance of 4.8 per cent, was our fourth leading market. Our fifth market, France, expanded 9.1 per cent to $121,700,000. Shipments to Italy,

FOREIGN TRADE BY CONTINENTS AND GREAT TRADE REGIONS

[Values in millions of dollars. Exports include re-exports of foreign goods. Data for 1910-14 cover years ended June 30; all other are for calendar years. The Philippine Islands are included in Asia for all years; Turkey in Europe is included in Asia beginning 1928.]

Yearly average or year	Total	North America, Northern, Value	North America, Northern, Per cent	North America, Southern, Value	North America, Southern, Per cent	South America, Value	South America, Per cent	Europe, Value	Europe, Per cent	Asia, Value	Asia, Per cent	Oceania, Value	Oceania, Per cent	Africa, Value	Africa, Per cent
EXPORTS															
1910–14..	2,166	320	14.8	181	8.4	121	5.6	1,350	62.3	121	5.6	48	2.2	25	1.1
1921.....	4,485	600	13.4	529	11.8	273	6.1	2,364	52.7	533	11.9	113	2.5	73	1.6
1922.....	3,832	583	15.2	332	8.7	226	5.9	2,083	54.4	449	11.7	102	2.7	56	1.5
1923.....	4,167	661	15.8	426	10.2	269	6.5	2,093	50.2	511	12.3	146	3.5	61	1.5
1924.....	4,591	634	13.8	456	9.9	314	6.8	2,445	53.3	515	11.2	157	3.4	70	1.5
1925.....	4,910	659	13.4	480	9.8	403	8.2	2,604	53.0	487	9.9	189	3.9	89	1.8
1926.....	4,809	748	15.5	429	8.9	444	9.2	2,310	48.0	565	11.7	213	4.4	101	2.1
1927.....	4,865	845	17.4	408	8.4	438	9.0	2,314	47.6	560	11.5	194	4.0	107	2.2
1928.....	5,128	924	18.0	397	7.7	481	9.4	2,375	46.3	655	12.8	180	3.5	117	2.3
1929.....	5,241	961	18.3	434	8.3	539	10.3	2,341	44.7	643	12.3	192	3.7	131	2.5
1930.....	3,843	671	17.5	349	9.1	338	8.8	1,838	47.8	448	11.7	108	2.8	92	2.4
1931.....	2,424	404	16.7	187	7.7	159	6.5	1,187	49.0	386	15.9	42	1.7	60	2.5
1932.....	1,611	246	15.3	119	7.4	97	6.0	784	48.7	292	18.2	37	2.3	36	2.2
1933.....	1,675	215	12.8	126	7.5	114	6.8	850	50.7	292	17.4	35	2.1	43	2.6
GENERAL IMPORTS															
1910–14..	1,689	119	7.0	229	13.5	207	12.2	836	49.5	259	15.3	17	1.0	23	1.3
1921.....	2,509	338	13.5	417	16.6	296	11.8	765	30.5	618	24.6	35	1.4	40	1.6
1922.....	3,113	367	11.8	456	14.6	359	11.5	991	31.8	827	26.6	49	1.6	65	2.1
1923.....	3,792	418	11.0	583	15.4	467	12.3	1,157	30.5	1,020	26.9	59	1.6	87	2.3
1924.....	3,610	402	11.1	593	16.4	466	12.9	1,096	30.4	931	25.8	49	1.4	73	2.0
1925.....	4,227	459	10.9	522	12.3	519	12.3	1,238	29.3	1,319	31.2	78	1.8	92	2.2
1926.....	4,431	486	11.0	526	11.9	568	12.8	1,286	29.0	1,401	31.6	68	1.5	96	2.2
1927.....	4,185	484	11.6	501	12.0	518	12.4	1,276	30.5	1,257	30.0	55	1.3	93	2.2
1928.....	4,091	500	12.2	461	11.3	569	13.9	1,249	30.5	1,169	28.6	53	1.3	90	2.2
1929.....	4,399	514	11.7	467	10.6	640	14.5	1,333	30.3	1,280	29.1	57	1.3	109	2.5
1930.....	3,061	414	13.5	347	11.3	434	14.2	909	29.7	856	28.0	33	1.1	68	2.2
1931.....	2,091	277	13.3	240	11.5	307	14.7	640	30.6	574	27.5	19	.9	33	1.6
1932.....	1,323	181	13.7	157	11.9	201	15.2	389	29.4	362	27.4	8	.6	24	1.8
1933.....	1,550	191	13.2	127	8.8	202	14.0	462	31.9	426	29.4	13	.9	28	1.9

our seventh market, were valued at $61,200,000, an increase of 24.6 per cent. Netherlands advanced 7.5 per cent to $48,700,000 while Belgium increased 7.4 per cent to $43,300,000. Exports to Spain were up 15.2 per cent and were valued at $30,800,000 and shipments to Sweden, at $18,600,000 increased 6.5 per cent. With a decline of 29.9 per cent, sales to the Soviet Union were valued at only $8,700,000.

Asia maintained its position as second continental market, taking 17.4 per cent of total exports, representing substantially the same value as in 1932. Japan was again third among export markets, taking $143,400,000 worth of American merchandise, an increase of 6.3 per cent. With the exception of Japan, the major Asiatic markets registered decreases below the 1932 figures. Sales to China, our sixth leading market, declined 5.8 per cent to a value of $63,200,000. The Philippine Islands, with $44,800,000, purchased slightly less, and British India, with $19,900,000 was 20.3 per cent lower.

Latin America showed a substantial increase of 11 per cent over 1932 and accounted for 14.3 per cent of total exports. The expansion in exports to the Latin American countries resulted mainly from larger shipments of iron and steel manufactures, machinery and automobiles. Our leading Latin American market was Mexico, with $37,500,000, an expansion of 17.6 per cent. Argentina, with $36,900,000 gained 18.6 per cent; Brazil, with $29,700,000 was up 4 per cent, and Cuba, with $25,100,000, showed a decrease of 12.7 per cent. Shipments to Colombia, valued at $14,800,000, increased 38.3 per cent and Venezuela, with $13,100,000, gained 28.2 per cent. Although still at a low figure, exports to Chile grew by nearly 50 per cent to $5,300,000.

Northern North America, with 12.8 per cent of total exports, showed a decline of nearly 13 per cent. Canada maintained its position as our second leading market, taking $210,700,000 worth of United States merchandise, a drop of 12.7 per cent.

Africa and Oceania.—Shipments to Africa, valued at $43,000,000, were 2.6 per cent of the total and nearly 20 per cent in excess of the 1932 figure. The leading market, British South Africa, took more than half of the African shipments, the value being $22,400,000, an increase of nearly 40 per cent. Oceania, with $35,000,000 declined 4.5 per cent and took 2.1 per cent of total exports. Sales to Australia, off 2 per cent, were valued at $26,300,000, while New Zealand business, at $8,200,000, was down nearly 11 per cent.

SOURCES OF IMPORTS

Europe was again the leading continental source of imports supplying nearly 32 per cent of general imports. The trade showed an increase of 18.8 per cent over the 1932 figure and was valued at $462,000,000. The expansion was shared by all leading countries in Europe, with the exception of Italy and Greece. The United Kingdom, third leading source of imports, supplied $111,200,000 worth of merchandise, an increase of 49 per cent. This was the greatest improvement shown by any of the major European countries. Receipts from Germany, sixth in order of importance, were 6.3 per cent greater and were valued at $78,200,000. France, ninth leading source of imports, supplied $49,700,000 worth of merchandise, an expansion of 11.1 per cent. Italian imports were down 9 per cent to $38,600,000. Sweden shipped $31,000,000 worth, a gain of 26.5 per cent, and the $30,900,000 of purchases from Netherlands represented an increase of 38 per cent. Belgian purchases were up 5.6 per cent to $23,100,000 and Spanish shipments, at $13,700,000, advanced 20.1 per cent. With an expansion of 24.3 per cent, imports from the Soviet Union were valued at $11,300,000.

Asia maintained the position as second leading continental source of imports, supplying 29.4 per cent of general imports. The trade was valued at $426,000,000, an increase of 17.5 per cent over the 1932 figure. Our second leading country source of imports, Japan, supplied $128,400,000 worth of merchandise, a drop of 4.2 per cent. The Philippines were fourth in the list and increased 15 per cent to $93,000,000. Standing seventh in the list, British Malaya shipped $60,000,000 worth of merchandise, a gain of 72.1 per cent. Receipts of Chinese merchandise, valued at $43,100,000, were 37.4 per cent greater; while purchases from Netherland India, valued at $33,100,000, advanced nearly 11 per cent.

Latin America. — Imports from Latin America amounted to $329,000,000, a decline of 8 per cent from the 1932 figure and comprising 22.8 per cent of general imports. Brazil, our leading Latin American supplier and fifth among all countries, increased somewhat, the trade value being $82,600,000. Cuba, eighth leading source, also showed slight improvement, the trade being $58,500,000. Colombia, with $47,600,000, was off 21.7 per cent and Mexican purchases declined nearly 18 per cent to $30,700,000. Shipments from Argentina, valued at $33,800,000, gained 114.5 per cent. Imports from

Venezuela were down 33.7 per cent to $13,500,000 and those from Chile, valued at $11,500,000, declined 6.3 per cent.

Northern North America, with $191,000,000 gained 5.1 per cent and comprised 13.2 per cent of general imports. Canada continued as the leading country of import, supplying $185,400,000 worth of merchandise, an increase of 6.5 per cent.

Africa and Oceania. — With $28,000,000, an expansion of 16.6 per cent, Africa sent us 1.9 per cent of our general imports. British West Africa, at $9,300,000 gained 3.7 per cent. Imports from Egypt were greater by 27 per cent, and were valued at $6,100,000; while those from British South Africa, amounting to $4,100,000, showed a marked gain of 69.2 per cent. Oceania supplied .9 per cent of general imports or $13,000,000 worth of trade, an increase of 71.5 per cent over the preceding year. Receipts from Australia, valued at $7,700,000 increased 65.4 per cent; while imports from New Zealand amounted to $4,800,000, an advance of 128.6 per cent.

FOREIGN TARIFFS AND TRADE CONTROLS

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GENERAL CHARACTERIZATION OF THE YEAR

The year 1934 saw much activity abroad, in the changing of tariffs, the fixing of quotas and exchange allotments and in the negotiation of trade agreements between various sets of countries. Allowing for a few individual exceptions, however, the net outcome appears to have left the general trade-control structure of the world as a whole about as restrictive as it was at the outset, and in a measure even more complicated because of the very developments of the year. Under the circumstances, it is not surprising to find that the beginning of general economic recovery experienced in varying degree within many countries, during the past year, was accompanied by very little expansion in the total volume of their trade exchanges with each other.

The developments of the year in this field were quite different in character in the principal world areas, and among the countries making up each group. Material changes in the duties, the usual regulators of import trade, have indeed taken place during 1934 in the majority of countries, with a number of countries putting into effect substantial over-haulings of their tariff schedules, involving some decreases along with the more common increases in the existing rates of duty. However, one of the important features of the diverse trends in commercial policy in different parts of the world during recent years has been the varying degree to which other devices and arrangements than import duties are relied upon as the dominant controllers of the movement of foreign trade. That is best seen from a separate examination of the general trends of the year in this field in the three broad world groups of Continental Europe, Latin America, and the British Empire.

CONTINENTAL EUROPE

Import Restrictions. — In most countries of Continental Europe, direct restrictions upon the quantities of particular classes of goods that might be admitted, or upon the amount of foreign exchange made available in their payment, either as a whole or for particular countries, overshadowed import duties as the prime determinants of the movements of foreign trade, and, in some cases, made even the usual price competition a secondary matter. Several additional European countries have during the past year been gradually going over to the import quota method of regulating imports, or at least certain classes of them, including the Netherlands, Italy and Spain. A number of the countries which had begun to operate such quota controls in previous years expanded their scope during 1934, so as to place additional products under quantitative restriction.

Import Quotas as Bargaining Weapons. — Moreover, the use of quotas, resorted to at first as a temporary defensive measure, has been turned by several countries into a distinctly aggressive bargaining weapon to promote exports of national products. The device employed has been to reduce the proportion of the global quotas which were to be allotted among the various countries in accordance with the share of the particular trade they supplied during some previous representative period, and to hold the balance as bargaining material, allotting these additional or "super contingents" to this or that country in return for specific reciprocal quotas or other considerations. In order to allow greater freedom in the discretionary assignment of imports to be permitted, increasing resort has been had to placing various products under an import permit system, without allocation of national quotas or otherwise announcing in advance the conditions under which permission to import might be counted upon.

Bargaining Adjustments.—One of the striking developments of the past year on the Continent of Europe has been the increasing extent to which quantitative controls of various types have been adjusted not only through autonomous action on the part of individual governments, but also as a result of special negotiations between various pairs of countries, in the course of which reciprocal quantitative assurances figured as more important bargaining considerations than reductions or assurances regarding each other's import duties. Thus, France, Germany, Netherlands, Poland, and Turkey have been prominent among the countries which have come to grant, increase, or withdraw quotas on the quantities of particular products permitted admission from a given country, largely in accordance with the state of the trade balance with the other country, or in accordance with counter-advantages offered by or obtained from the other country, in the form of reduced duties, enlarged quotas, offer of guaranteed purchases of national products, release of blocked funds to its citizens, or a combination of these concessions. The experimental and emergency nature of most of these agreements was apparent in several ways. Most of them were of relatively short duration, often covering limited or secondary categories of goods, and were subject to frequent revision, each supplementary or substitute agreement showing material shift in the commodities and quotas involved. Not infrequently the details of an arrangement were not made public, or they were left to later adjustment by consultation or mixed commissions. Moreover, many of these agreements involved a degree of particularistic control by governments upon the quantities of specified commodities which might be admitted and the countries or conditions of their importation, or of the payment that might be made for them, such as has not been witnessed since the period of extreme tension that marked the years of the World War and those immediately following.

Centralized Control of Selected Commodities.—Since the summer of 1933, there have been developing in a number of European countries a system of either governmental monopolies or other centralized governmental controls on imports of selected classes of commodities, usually foods or raw materials. While most striking and general in the case of Germany, this system has grown during the past year also in the Netherlands, Latvia and the United Kingdom, and has been introduced, in a limited measure, also in a few other European countries, among them Italy. This is one of the exceptional respects in which the recent trade policy of the British government has been more similar to that of Continental Europe than of the British Empire generally.

In the case of farm products, these centralized controls upon imports are often being integrated with various forms of internal control upon the production and distribution of similar domestic products. In several countries, the scheme involves the levying upon imports of additional charges, termed "monopoly fees," the proceeds from which are sometimes used to bountify domestic producers in that line. In a few cases, the monopoly or central body even prescribes the price at which the imported products are to be sold. This system of centralized control of trade, and often of prices, has been carried further during the past year in Germany than anywhere else outside of Soviet Russia, with all imports made subject to the permission of 25 trade-control boards, with whom is lodged the discretion to issue permits for various commodities, in accordance with the degree of their indispensability, the amount of foreign exchange available from sales to the given country, or in accordance with other special considerations.

Trade Balance and Financial Considerations.—The concern of the majority of the governments of Continental Europe during 1934 appears to have centered upon the improvement of their balance of trade, and thereby also of their foreign exchange rates and general financial position. This has often seemed more important than the usual motives of protection to domestic producers from undue foreign competition, or increased governmental revenues, or even the desire to attain greater domestic self-sufficiency in particular foodstuffs or other products, which has recently been so strong an objective in certain countries. Since the prospect of early and material enlargement of the volume of sales of the country's export products in other markets did not seem very promising, in view of the still reduced level of economic activity and purchasing power all around, and the cumulative trade barriers built up during depression years, most European governments stressed their *general* trade balance consideration in dealings with each *individual* other country. They endeavored in their bilateral agreements to hold down the volume of importations that they would allow from the other country close to the volume of sales of their products to the other country of which they could feel fairly assured, or which the other government undertook to facilitate. In fact, the party to a negotiation in whose favor the trade balance had been running often found it necessary to offer concessions in duties or enlargements of quotas to the other, in order to hold its existing market in the other country or to prevent its being curtailed too severely.

The advantages or assurances exchanged in the course of most of the European trade agreements of the past year did not lend themselves, by their very nature, to generalization to other countries on a most-favored-nation status with the contracting governments. In fact, it was seldom their objective to enlarge materially the volume of the country's total purchases from abroad, but rather to try to divert or redirect to particular countries and sources either the existing limited amount of total importations in various commodities, or such volume of importations as their immediate trade balance position or volume of shrunken exports appeared to permit.

Since these quantitative controls or other special devices for regulating import trade had not been anticipated in the days when nations wrote their long-time agreements, and there was no clear understanding that the principle of equality of treatment was intended to extend to any methods of regulating foreign trade other than import duties, many governments apparently did not feel themselves subject to any particular obligation toward producers in various countries who had come to count upon their particular markets. Indeed, one of the objectives observed in a number of the European agreements of the past year has been to establish some principles in this field to govern future relations between them, by obtaining assurance of equal consideration with any third country in the operation of these unusual and undisciplined methods of trade control, either in the form of equitable allocations of the amounts of permitted imports of products already or later subjected to restrictions, or of funds to pay for them.

The numerous exchange clearing arrangements and compensation agreements entered into by most of the European countries with each other and with a number of the Latin American countries, which have been so much in the news during the year, represent the mechanism by which nations were trying to give effect to this general objective of improving their general trade balance through fixing a compensatory relation or a particular ratio in the volume of goods exchanged with each other country. However, these clearing and compensation agreements, which have been especially common in Central Europe where international trade has gone back very close to a state of barter are reported not to be working out very satisfactorily. Aside from the administrative difficulties involved, it appears that, where an approximate balance in the trade movements between a pair of countries is attained, it is usually on the level of the lower rather than the higher previous current of trade. It seems significant that, on the Continent of Europe, where for several years there has been more intense activity than anywhere else in the negotiation of special commercial agreements and trade-balancing arrangements, the aggregate foreign trade has run materially lower (in gold values) during the months of 1934 than of the preceding year, while the corresponding foreign trade movements of other parts of the world either held their own or improved in volume over previous years.

LATIN AMERICA

Shortage of Foreign Exchange.— In contrast to the situation on the Continent of Europe, the use of import quotas has been rare among the countries of Latin America, either in their autonomous measures or in their contractual arrangements with other countries. During the last few years, the sheer shortage of foreign exchange has been an overshadowing consideration in determining the amount of new foreign purchases that could be made or paid for, even in those few areas where there has been no official centralized control of foreign exchange, which has recently been the rule in almost all of South America and parts of middle America. However, import duties are now resuming their position as the prime regulator of imports, second in importance only to the reduced purchasing power of these countries, arising from the reduced markets and low prices for their export staples, upon which their prosperity so depends.

With the expansion of activity in many industrial countries during 1934 and the improvement in the world price for the principal natural products of Latin America, the shortage of foreign exchange has eased up materially in many of these areas. While none of them gave up their exchange control system entirely, there has taken place in a number of important American Republics a recognition of the unofficial exchange market, in which funds to remit to foreign countries were available in substantial amounts, although at a higher cost, usually ranging between 10 to 20 per cent above the official rate, and in a few cases much higher. Particularly where the spread between the open and the official rate had narrowed, opportunity was afforded for carrying on a substantial amount of new business and for liquidating some old accounts outside the official exchange control system, with prices or new business often being adapted to the higher open market rate. Even in the case of Argentina, where the series of what amounted to exchange clearing agreements insisted upon by various European countries narrowed the amount of exchange available at the lower official rates for making payments to other countries, the availability of a substantial amount of exchange in the free market, although at a higher rate, appears to have been an important alternative in allowing business with those countries to continue in fair volume.

Tariff revisions took place during 1934 in several countries of Latin America, although for different purposes. The Brazilian general revision included material reductions on a range of foreign products, which either are not directly competitive or are regarded as necessary to the economic life of the country, with provision for selective protection to certain developing national industries, through customs facilities for raw materials or equipment needed from abroad. The Cuban revision adjusted many duties to conform to the provisions of the new reciprocal trade agreement with the United States, involving numerous reductions from previous rates, and also the abolition or moderation of surcharges and consumption taxes previously imposed as emergency measures. As a step toward making the Republic of Panama a greater inter-American trade distribution center, that government decided in December upon the complete elimination of the import duties on about 600 classes of commodities, mostly consumers' goods. The loss in revenue from the prospective abolition of these duties is expected to be counterbalanced by a largely increased volume of international trade in Panama.

On the other hand, the new tariffs put into operation by Venezuela and Honduras, and that proposed by Peru, consisted mainly of materially upward revisions on substantial ranges of commodities. The new Salvadoran tariff system contemplates three scales of duties, with the intermediate and maximum scales, consisting of the previous rates plus surtaxes, to be applied to the various non-treaty countries according to the degree to which their exports to El Salvador exceed their imports from that country.

In addition to these general changes, selective modifications in import tariff rates were made in various of the Latin American countries during the year, with frequent evidence of a desire to foster domestic production of some lines largely imported hitherto, often by reducing or waiving the duties on imported industrial materials and productive equipment. As special aids to domestic producers, several of these countries provided varying measures of export subsidies on certain secondary crops, often deriving their funds from increases in customs duties.

Reciprocal Trade Agreements. — The movement in Latin America for the negotiation of reciprocal trade agreements, among themselves and with outside countries, was carried considerably further during 1934, over 25 such agreements having been reported, most of them with overseas countries. Considerable diversity was observed in the types of these arrangements entered into during the past year. At least six Latin American countries concluded agreements in which they granted reductions in their duties on lists of selected commodities, in return for the guarantee on the part of the other country either of its existing minimum duties or of assured import quotas during the period ahead for their important export products notably coffee, nitrates and fruits. These arrangements arose out of the general import limitation programs of the European countries involved.

Another type of agreement provided for reciprocal reductions in some duties, and assurance against increase in others, on selected commodities of particular interest to each of the countries, whether or not combined with quota provisions on outstanding products. This type was perhaps best exemplified during the past year by the reciprocal trade agreement entered into by Cuba with the United States, whereby, in return for concessions in the import duties into the United States for sugar, tobacco, rum and off-season fruits and vegetables, Cuba granted increased tariff advantages on a broad range of commodities of which American producers had been the principal suppliers to that market. The Cuban-American reciprocity agreement is exceptional in that the special preferential relation between the two countries, established at the time of the independence of Cuba, continued to mark their relations. Similar agreements, contemplating concessions and bindings of existing favorable treatment on each side of selected products of which the other country has been an important supplier, are understood to be under negotiation by the United States with a number of other countries of Latin America, including Brazil, Colombia, Haiti, and those of Central America, the advantages of which would presumably be generalized to other nondiscriminating countries on a most-favored-nation status.

Exchange Measures and Factors.—Contrasting in method and principle was the type of agreement exemplified by the arrangements entered into by Argentina with a series of European countries. The feature common to them all was the pledge secured from Argentina to provide exchange, at the favorable official rate, out of the volume of purchases of Argentine products by the other countries for the prompt liquidation of current purchases of merchandise from the other countries and for the transfer of blocked funds or other debts due their citizens, after deduction of "a reasonable amount" for general debt services. These will be recognized as modeled after the Anglo-Argentine agreement of the preceding year, and, as in that case, the insistence upon preferential exchange treatment being assured merchants and creditors in those European countries arose from the fact that these countries normally had need for larger importations of the distinctive Argentine products than Argentina did for their particular export commodities. The availability of foreign exchange in the open market, although at somewhat higher rates, tempered the restrictive nature of these agreements upon the possibility of sales in Argentina by producers in countries whose balance of trade was not favorable to Argentina.

This objective of bringing about a closer bilateral balance in the trade with each country prompted the special exchange compensation arrangement between Brazil and Chile recently, and led to the proposal by Uruguay for the creation of an Imports and Exchange Commission, charged with the fixing of import quotas by quantities and classes of goods, under a plan to pay for imports by allocating a minimum of 75 per cent of the exchange derived from exports to each country, the balance to be reserved for servicing public and private debts, and other transfers of funds. The Uruguayan plan incidentally illustrates the difficulty of keeping distinct the quantitative control upon imports of particular classes of goods allowed admission from different countries, from the control upon the allotment of exchange with which to pay for such imports, the two methods sometimes intermingling or serving in place of one another.

Most-favored-nation Agreements.—Finally, in contrast to the efforts toward bilateral balancing of trade between individual pairs of countries, through special arrangements regarding exchange control or quota allotments, were half a dozen agreements entered into by several countries of Latin America during the year providing simply for most-favored-nation treatment, which, in certain cases, was extended also to assurances regarding the granting of foreign exchange and allotments of quotas. Which of the quite diverse tendencies indicated by these different agreements entered into by countries of Latin America during the past year are likely to represent the dominant trend during the period ahead, it is still too early to judge.

THE BRITISH EMPIRE

Agricultural Import Restrictions.—The control of foreign exchange, common in Europe and Latin America, has not been an important instrument of commercial policy among the areas constituting the British Empire during the depression, and, outside the United Kingdom and the Irish Free State, there have been only few instances of resort to the typically European device of import quotas. The program of the present English government designed to revive home agriculture by so limiting imports as to bring about larger home production and better prices to English producers of a series of important foodstuffs, has involved a growing system of quantitative restrictions on the importation of those products. Primarily they applied to countries outside the Empire, although 1934 saw some extensions of the quotas also to Dominion products, and others are reported as prospective. Under authority granted during the past year to its Executive Council, the Irish Free State now has a limited but growing list of products subject to quantitative limitation, with large discretion to the government in granting quotas and licenses, including the designation of the country from which the goods are to come as well as the route.

Import Duties.—Broadly speaking and with the exceptions noted, import duties have continued the primary controllers on import trade into most parts of the British Empire. Their restrictive effect upon the trade of the Empire areas with the nations generally was, however, intensified by the Imperial Preference movement, designed to bring about the supplying of the import needs of these areas more largely from each other, through an Empire-wide program of preferential treatment of each other's products, by lower tariffs or exemptions from other restrictions imposed on the admission of competitive non-Empire products. This movement received a great impetus through the series of agreements entered into between the various British areas at the Ottawa Conference of 1932, most of which were to run for five years, subject to amendment by consultation in the interval.

Tariff Changes. — The year 1934 saw some reaction in a number of the Dominions from the upward movement in the tariff rates that had marked recent years, which had been particularly noticeable in most of the measures to give effect to the Ottawa commitments. These usually increased the duties on products from non-Empire sources while leaving unchanged, or even reducing, the British preferential rates on the same products. A feature of the downward tariff changes of the past year, however, has been the net enlargement in the margin of preference to Empire over other suppliers of most of the articles affected. In other ways also the year saw extension of the preferential movement, particularly in the further advantages for British products in this or that colonial area. On the other hand, there has been difficulty reported between the Mother country and the Dominions regarding the proposed restrictions on the market for their meats and other foodstuffs in the United Kingdom, and the Irish Free State eliminated Empire preferences on many products in the course of revision of their duties.

Colonial Textile Quotas. — In the British Colonies, quotas were imposed during the past year on cotton and rayon piece-goods, upon request of the United Kingdom, as a means of holding those markets for the Lancashire producers against the increase of outside competition, especially from Japan. These textile quotas, which appear to have been quite generally renewed also for 1935, limit the importations from various sources to the average share they supplied during the five year period 1927-1931.

Trade Agreements.—The year saw considerable activity in the negotiation or discussion of trade agreements with various countries on the part of a number of the Dominions, as well as of the United Kingdom herself. There was, however, considerable diversity in the purpose and provisions of the agreements concluded. Thus, the principal Canadian agreement of the year, with France, provided for reciprocal concessions in duties and other advantages on both sides, as, in a more limited way, did the New Zealand agreement with Belgium. On the other hand, in a series of trade agreements between the United Kingdom with various countries of Europe, only one was reported to provide any reductions in existing British duties, and those largely by way of removal of retaliatory levies. In the agreements entered into by the United Kingdom with the three Baltic countries and Poland, the duty concessions given by the other countries and their purchase commitments for British coal were mainly in return for promises that the position of various of their distinctive products would be safeguarded in the British market against increase of duties or disproportionate quota restrictions.

In the United Kingdom, agreements with France and the Netherlands, progress was made toward the recognition that the most-favored-nation principle required, in the field of quotas, the allotment of the full proportional share of any restricted commodity supplied by the other country during a previous representative period. Of quite a different type was the agreement which closed the controversy between British India and Japan. This provided, in addition to most-favored-nation assurances, for specific quantities of Japanese piece-goods to be admitted at the lower duties in effect previous to 1932, in return for the guaranteed Japanese purchase of specified quantities of Indian raw cotton.

Export Control of Raw Material.—Two important developments of the year in the field of export control of raw material, involving largely the British Empire, were the extension for another three years of the international agreement between the principal tin-producing areas (Malay States, Netherland India, Nigeria, Bolivia and Siam) for the quantitative control of the exports of that metal, and the completion of an international agreement for controlling the export of crude rubber. This latter agreement, which is to run through 1938 and embraces the areas accounting for fully 98 per cent of world rubber production (Malaya, Netherland India, Ceylon, British India, Burma, French Indo China, North Borneo, Sarawak and Siam), provided for basic annual export quotas for each plantation-rubber producing territory, and for an international regulation committee, appointed by the various governments, which fixes from time to time the percentage of the basic quota which may be exported from each territory.

Bounties. — For the purpose of stimulating domestic production or maintaining the volume of exports of particular products, mainly agricultural, several of the British areas adopted or extended bounties during the past year. Thus, the United Kingdom began to pay a bounty on domestic cattle production, and has undertaken to guarantee a tariff advantage, on a progressively reducing scale, to gasoline produced from coal or shale for a period of ten years. The Irish Free State increased the rate of bounty on exports of pork, poultry and dairy products, among others, and discontinued the bounty on calfskins. Australia announced a revised bounty to wheat growers and increased the bounty to cotton producers, the amounts depending upon the current market price. The Union of South Africa has given authority for the payments of bounties on the exportation of cattle, sheep and their products, and plans to continue its export subsidies on agricultural and other natural products for one year, with a gradual decrease and disappearance in three years, excepting on meat. On the other hand, several of the Dominions have subjected to license the exportation of certain agricultural products, in order to conform to the plan desired by Great Britain for import limitation of those products into its market.

PUBLIC REGULATION OF COMMODITY EXCHANGES

BY ARTHUR RICHMOND MARSH

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RESTRAINT IN GOVERNMENT ATTITUDE TOWARD EXCHANGES

With reformatory regulation of the country's banking and financial institutions in general, and of the stock exchanges in particular, so stressed as it has been for more than a year past in the recovery program of the present National Administration—the so-called "New Deal"—it might naturally have been expected that our great commodity exchanges, especially those for domestic farm products, would be subjected to similar hostile scrutiny both by Congress and by the administrative officers of the Government, and that numerous fresh projects would be proposed for the stricter regulation of these markets in the supposed public interest. Actually, however, governmental attention appears to have been directed to the commodity exchanges only incidentally and to a minor degree; sweeping and destructive official criticisms of the exchanges and their operations have been notably lacking, and legislation designed to restrict the activities of the members of the exchanges or to impose hard and fast rules upon their dealings has found no place in the far-reaching legislative program of the "New Deal." Furthermore, there has been little demand for such new legislation on the part of the general body of the farmers producing the great crops whose distribution is affected by transactions upon the exchanges, and, consequently, independent efforts within Congress to enact laws to curb alleged "abuses and excesses" in the conduct of business on the exchanges or to deprive these institutions of their customary functions in the business economy of the country have been few and feeble.

The virtual freedom of the commodity exchanges from fresh governmental interference during the period from March, 1933, down to the end of 1934 is the more noteworthy because in the development of the recovery program President Roosevelt and his associates in the Administration have regarded as of primary importance the restoration of the farm population to equality of economic status with the urban and industrial population, to the end that the enhanced purchasing power of the farmers and their families might create a demand for the products of idle factories and might thus provide work and wages for large numbers of unemployed industrial workers. An essential part of this undertaking, of course, was the bringing about of a relatively large improvement of the prices commanded in the great domestic markets by the basic products of agriculture—wheat and the other grains, cotton, wool, tobacco, animal and vegetable fats, meat products, hides, butter, eggs, etc.,—practically all of which transactions on organized exchanges are today, if not actually determinant of prices at any rate powerfully influential in establishing the price basis governing the movement of the entire mass of the respective commodities in the country's domestic and international commerce. With the enhancement of agricultural prices thus holding an outstanding place in the Administration's recovery policies there was obvious danger that control of the commodity exchanges to this end should be officially attempted and that regulative measures should be imposed upon traders in these markets which supposedly would have the effect of preventing or, at least, greatly curtailing all operations in them—particularly, "short selling"—even superficially and temporarily inimical to the desired rise of prices. It goes without saying that the imposition of such restrictive measures, if it had been tried, would have destroyed the freedom of the organized commodity markets and would quickly have deprived them of their influence as organs for the establishment of dependable prices governing the normal distribution of the farm products affected. Fortunately, however, the officers of the Government have resisted the temptation to embark upon this course. They have evidently found upon examination of the matter that, under modern economic conditions, the commodity exchanges have become indispensable instrumentalities for the orderly marketing of the country's great crops, and at the same time that the adequate functioning of these institutions is impossible unless freedom of action is preserved for the traders, merchants, manufacturers and other classes of persons who habitually use them in the regular course of their business. Hence no governmental action has been taken in connection with the commodity exchanges which is even remotely comparable with the regulatory legislation affecting the stock exchanges, the organized business of issuing and marketing securities, or the country's banking institutions.

ELEMENTS GOVERNING COMMODITY PRICES

It is a fact of some significance in this connection that the governmental organizations particularly charged with the rehabilitation of agriculture in the national economy, notably the Agricultural Adjustment Administration and its affiliated agencies, have themselves found it advantageous to make substantial use of the facilities of the cotton and grain exchanges in the difficult process of establishing reasonably remunerative price levels for cotton, wheat, corn, etc., notwithstanding the existence of heavy excess supplies of these commodities, the distribution of which to ultimate consumers the world over must be spread over a considerable period of time if price depressions disastrous to the producing farmers were to be avoided. While it has been recognized in governmental circles that the main reliance in handling this complex problem must be upon measures designed on the one hand to bring about a gradual reduction of the depressing surplus supplies to the normal carrying capacity of the world's markets (temporary limitation of current acreage and production, etc.), and on the other hand to relieve the farmers of the necessity of mass marketing of their crops during the harvesting season at whatever prices might be obtainable (governmental or governmentally guaranteed cotton and grain loans at relatively satisfactory prices, acreage rental and benefit payments, etc.), it has also been recognized that the immediate course of world prices for cotton and grain is largely determined by the operations of the cotton and grain trades in all their ramifications upon the cotton and grain exchanges, so that the governmental objects with respect to prices can frequently be most effectively achieved through hedging purchases or sales of future contracts in these markets. Consequently, the governmental agencies have upon occasion been distinctly large buyers or sellers of such contracts, thereby demonstrating that the most authoritative official opinion, even under the "New Deal," holds transactions of this character to be both defensible and beneficial.

AAA CHECKS ON SPECULATION

What has just been said should not be understood as implying that the administrative officers of the Government have displayed complete indifference to the nature of speculative or other operations on the commodity exchanges, taking no steps to curb what they deemed to be speculative excesses or unwarranted price manipulations. In certain specific instances, for example, the Agricultural Administration has invoked powers embodied in the United States Grain Futures Act for the purpose of holding within bounds not detrimental to the general market and price fabric for wheat for speculative activities of aggressive individual traders, who by reason of the mere magnitude of their concentrated transactions were in a position to produce violent price fluctuations, generally of short duration, which were unduly disturbing from the standpoint of the orderly distribution of the country's supply of wheat. Similarly, the Agricultural Administration has sought to enforce the provision of the same statute designed to prevent the covert accumulation of excessive lines of future contracts on a grain exchange, whether for the "long" or for the "short" account, by individual traders desirous of concealing their position in the expectation that the very size of this position and the uncertainty about it must in time alarm the trade as a whole and thereby induce an economically unwarranted movement of prices. The statutory provision in this regard is that every trader operating upon a grain exchange shall, in case his transactions involve more than a relatively moderate quantity of wheat or other grain, report the same as made to the supervising governmental authorities, keeping these authorities fully informed at all times as to the magnitude of his commitments. This requirement, having been resisted and illegally evaded by a few large-scale speculative traders in wheat, who deemed it an infringement upon their constitutional rights as citizens, the Agricultural Administration has sought to enforce it by legal proceedings. To this extent, therefore, the Government has directly interfered with the business carried on upon the grain exchanges, although this interference can scarcely be said to have affected materially the normal functioning of these markets. On the other hand, the business of the cotton exchanges and of the other exchanges for agricultural products has not been touched in any way by the governmental authorities, being allowed to proceed in the customary fashion without the least attempt to impose governmental ideas or rules upon it.

CONCLUSIONS

The inference obviously is that these institutions have been found upon examination to be governed by essentially just and equitable principles of trading, while at the same time they have established themselves as the most effective and dependable of all known instrumentalities for the registration of the world's best judgment with respect to the commercially and economically warranted prices for the respective commodities at any given time. This being the case it would seem safe to assume that the commodity exchanges have now been accorded an accepted place in the country's commercial and economic system, being no longer exposed to destructive or crippling governmental action.

RAILROAD TRAFFIC AND EARNINGS

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GENERAL

The year 1934 was another critical year in the affairs of the railroads of the United States, although not quite so desperate as the preceeding two years. Railroad men generally were pleased to see a somewhat better tone prevailing at the year-end than for several preceeding years. The railroads are by no means on solid ground yet, but there are some harbingers of better conditions in railroad traffic and earnings which indicate that better times may not be far ahead.

RAILROAD MILEAGE

Main-Line.—There has been but little change in the number of miles of main tracks operated by American railroads since 1920, due to the fact that the legal and economic obstacles in the way of abandonment make it very difficult for the railroads to retrench in this manner. A few small railroads were permitted to abandon their entire lines, and some branch lines of larger railroad systems have been abandoned. The latest available figures for the main-line mileage of the railroads of the United States place the mileage at 248,829 miles, about 31.2% of the total railroad mileage in the world, which is estimated at 796,541 miles.

Trackage Operated. — There has been, moreover, but little change in the total mileage of railroad trackage operated. Class I, II and III carriers in 1933 operated about 427,000 miles of track, including main tracks; second, third and fourth and other main tracks; yard tracks and sidings. About 95% of the total trackage is operated by Class I carriers. The total trackage operated by all railroads in 1920 amounted to 406,579 miles. There was an increase of from 1,000 to 3,000 miles each year from 1920 to 1929. Since that time the mileage has decreased slightly from the peak of 429,883 in 1930. New additional mileage has failed to off-set abandonments.

LOCOMOTIVES

The stress of economic circumstances and technological progress are both reflected in recent changes in the number of railroad locomotives in service, the average power of the locomotives and the total available locomotive power.

The number of locomotives in service on Class I railroads has decreased steadily year by year since 1924, just as each year prior to 1924 witnessed an increase in the number. In 1924 there were 65,358 locomotives in service on Class I American railroads. At the beginning of 1934—the latest available figure—there were 51,000, a decrease of more than 14,000 or 23 per cent. This reduction reflects not only decreased locomotive purchases, and losses in traffic, but the replacement of smaller and obsolete locomotives with a smaller number of larger locomotives. This tendency is reflected even more clearly in the statistics of average and total locomotive tractive power. Each year there has been an increase in the average tractive power per locomotive and each year until 1926 showed an increase in the total tractive power of all locomotives in service. In 1924, the year in which the largest number of locomotives were in service, the average tractive power was 39,891 pounds per locomotive, and the total tractive power aggregated 2,593,178,015 pounds. The average tractive power at the beginning of 1934 was 46,500 pounds, an increase of more than 18 per cent over the average in 1924 and of more than 40 per cent over the average in 1916.

The total locomotive tractive power reached its peak in 1926 when the total tractive power aggregated 2,611,237,975 pounds. Since that year there has been a steady annual decrease until 1934, when the latest available figure places the total tractive power at about 2,350,000,000 pounds.

The heavy losses of freight and passenger traffic in recent years have caused the railroads to retire worn-out and obsolete equipment, and to lay-up large numbers of locomotives awaiting increased traffic.

RAILROAD ELECTRIFICATION

The progress in railroad electrification, the development of streamlined, high-speed, light-weight equipment propelled by internal combustion engines for main-line and branch-line services, and progress in the arts have caused the railroads to purchase and install in 1934 additional electric locomotives, gasoline locomotives and cars, gas-electric motive equipment, and diesel and distillate engines and trains. Some of these improvements have been stimulated by public loans. Due in part to loans of the PWA the railroads have installed in service 50 new steam locomotives, 35 new electric locomotives, compared to 1 new steam locomotive in 1933. On December 31, 1934 there were on order for delivery in 1935, 95 new electric locomotives and 23 new steam locomotives.

FREIGHT CARS

The decrease in the number of freight-carrying cars in service in recent years reflects several factors. First, the replacement of worn-out and obsolete cars with a smaller number of better and larger cars; second, decreased freight car purchases by the carriers, and, third, decline in freight traffic. The number of freight cars in service has decreased each year since 1925, when 2,357,234 cars were in service on Class I railroads. At the end of 1933 there were 2,036,000 freight cars in service according to the latest estimate, and the number was doubtless lower in 1934 although official figures are not yet available.

The average carrying capacity of freight cars has been increased steadily year by year, and is now over 47.1 tons per car, as compared with 44.8 tons per car in 1925, the peak year in number of freight cars, and with an average of 42.4 tons in 1920 and 36.9 tons in 1911. The increased capacity of freight cars is the result of improvements in car design and construction, particularly in the use of all-steel and steel-underframe construction. In very recent years there has been a tendency to construct certain types of cars of lower carrying capacity in order to accommodate special traffic and smaller trade units, and to provide smaller equipment to meet motor competition and for use in fast freight service. Due to PWA loans to stimulate employment in the heavy industries, 24,000 new freight cars were put in service in 1934 as compared with 1,874 in 1933.

There have been reductions in the aggregate carrying capacity of freight cars in the past few years despite the steady increase in average carrying capacity due to the decreasing number of cars in service. The peak year for total freight car carrying capacity was 1926. Since that year there has been a steady decrease.

The figures cited above do not include the equipment data for Class II or Class III railroads, nor the private freight cars owned and operated by car lines or by industrial concerns.

PASSENGER CARS

The number of passenger cars in the service of Class I railroads of the United States has decreased steadily since 1924 when the railroads had over 55,000 passenger cars in service. The number now in use is about 46,500, a decrease of 18 per cent. This is exclusive of the cars owned and operated by the Pullman Company. The decrease reflects the construction of larger and better cars to replace smaller and obsolete passenger cars, as well as decreased purchases and declining passenger traffic and revenues. Several railroads have recently made experimental installations of diesel, distillate, gasoline and gas-electric propelled passenger-carrying equipment, and there has been much discussion in 1934 of these radical changes in passenger services and equipment. The Federal Coordinator of Transportation, Joseph B. Eastman, and the Section of Transportation Service, canvassed the views of various types of actual and potential railroad passengers, seeking their suggestions upon railroad passenger services and equipment, in order to stimulate railroad passenger traffic. There was a heartening increase in railroad passenger traffic in 1934.

ROADWAY AND STRUCTURES

Rails.—The railroads have continued to replace the old and light rail with new, heavier and better-ballasted tracks, and to improve structures, although the pace of reconstruction has been reduced materially since 1929. The average weight of rail now in use is over 91.6 pounds per yard as compared with about 83.5 pounds per yard in 1922. About 10,000 miles of the Class I railroad system is laid with rail lighter than 60 pounds per yard, nearly 22,000 miles are laid with rail heavier than 120 pounds, and the rest is equipped with 60- to 120-pound rail.

Improvement Expenditures. — The Committee on Public Relations of the Eastern Railroads reported near the close of 1934 that the Class I railroads have made gross expenditures of $7,800,000,000 in the last 12 years in enlarging and improving their properties in order to improve the efficiency of operation. These gross expenditures were made for roadways and structures, distributed among the following items: additional track, heavier rail, additional ballast, shops and engine houses, and miscellaneous roadway and structure improvements. The expenditures for equipment were divided among freight-train cars, locomotives, passenger-train cars, and other equipment.

Improved Facilities.—Outstanding improvements in railroad facilities instituted or continued in 1934 include: 1. an increase in the use of high-speed railway passenger equipment; 2. improvements in the air-conditioning of long-distance passenger trains; 3. continued development of state-room, compartment sleeping car facilities and ''single-occupancy'' section use of sleeping cars; 4. the opening of several new and palatial railroad passenger stations; 5. continued progress in railroad electrification; 6. increase in size, seating arrangements, lighting and ventilation of passenger cars; 7. use of buffet and ''self-service'' dining cars; 8. increase in average train speed; 9. increase in average tractive power of locomotives; 10. increase in average carrying capacity of freight cars; 11. progress in development of terminal facilities for handling perishable freight traffic; and, 12. increased use of automotive vehicles in store-door collection and delivery services.

EMPLOYEES AND WAGE PAYMENTS

The average number of persons employed by Class I railroads in 1933, the latest available year, was 970,893 as compared with 1,031,703 in 1932, 1,258,719 in 1931, 1,487,839 in 1930, 1,660,850 in 1929, 1,656,411 in 1928, 1,735,105 in 1927 and 1,779,275 in 1926. Each year since 1926 there has been a decrease in the number of employees. At present there are less than half the total number of employees in the peak year of railroad employment which was 1920, when 2,022,832 persons were employed.

Railroad payrolls have also fallen, due to the reductions in the number of employees and to wage deduction agreements. In 1933, the total railroad payroll was $1,403,881,864 as compared to $1,512,816,147 in 1932, $2,094,994,379 in 1931, $2,550,788,519 in 1930, and $2,896,566,351 in 1929. The peak year in railroad payroll payments, as in railroad employment, was 1920, when wage payments aggregated $3,681,801,193.

Railroad wages were at the highest point in history in 1920 when the average railroad employee received annual wages of approximately $1,820. The trend was downward, as a result of adjustments made through the defunct Railway Labor Board or through individual wage and salary reductions until 1924 when the average wage was $1,613. Between 1925 and 1929 average annual wages increased from $1,639 in 1925 to $1,744 in 1929, but fell steadily from 1929 to the present; $1,714 in 1930, $1,664 in 1931, $1,466 in 1932 and $1,445 in 1933, the latest year for which figures are now available. The decreases are due to percentage wage decreases, and to reductions in the average number of hours worked per employee. The figures used here are for all Class I railroads.

The classification of railroad employees and their average compensation for Class I railroads, including large switching and terminal companies are interesting. Executives, officials and staff assistants totalling 12,222 employees received average compensation of $5,062. Professional, clerical and general employees aggregated 163,417 persons and received average annual compensation of $1,581. Maintenance of way and structure employees totalled 198,125 persons and received on the average $898 per year. Maintenance of equipment and stores employees numbered 262,550 persons, and their average compensation was $1,254 per year. Transportation employees, excluding train and engine service employees, aggregated 123,381 persons and received an average annual wage of $1,319. Yard masters, switch tenders and hostlers numbered 12,107 persons with average annual compensation of $1,988. Train and engine service employees, including enginemen, firemen, conductors and brakemen totalled 199,091 persons, and their average annual wage was $1,956.

RAILROAD INVESTMENT

Gross expenditures of Class I railroads for additions and betterments have been decreased sharply in recent years as a result of traffic losses and credit stringency. The expenditures in 1933 amounted to $103,947,000 as compared with $167,194,000 in 1932, and 71 per cent less than the $361,912,000 spent for additions and betterments in 1931. The amounts expended in previous years indicate how greatly the railroads have retrenched in this direction. Expenditures in 1930 were $872,608,000, in 1929, $853,721,000 and $1,059,149,000 in the peak year 1923.

The total property investment of Class I railroads, including their non-operating subsidiaries amounted to $25,942,000,000 in 1933, as compared to $26,152,000,000 at the end of 1932; $26,242,856,220 at the end of 1931; $26,354,686,261 in 1930; $25,870,122,983 in 1929; and $20,925,988,630 in 1920. These figures include the total investment in road and equipment, materials, supplies, and cash.

Net capitalization of all Class I railroads, excluding switching and terminal companies, amounts to about

$18,983,459,000. The net capitalization is the amount of railroad stocks, bonds and other funded debt outstanding in the hands of investors, excluding railroad securities held by railroads. The net capitalization includes $11,835,523,000 of funded debt, and $7,057,936,000 of capital stock.

RAILROAD EARNINGS

Operating Gross.—Due to the saving improvement in earnings in 1934, the Class I railroads showed an improvement in earnings as compared with 1932 and 1933. Preliminary estimates indicate earned gross operating revenues in 1934 of approximately $3,240,000,000, as compared with $3,095,448,888 in 1933 and $3,126,760,154 in 1932, an increase of about 4.7 per cent over 1933. Operating expenses in 1934 are estimated at $2,435,000,000 as compared with $249,318,750 in 1933, an increase of 8.3 per cent over 1933.

Operating Net. — The same railroads are estimated to have earned net railway operating income of $445,000,000 in 1934 as compared with $474,309,206 in 1933, and $326,298,008 in 1932. The net railway operating income is arrived at by deducting the gross operating income from gross revenues to find the net operating revenue, and deducting taxes and uncollectable revenues from this sum to find the railway operating income. The estimates for 1934 are based upon estimates made by the Association of American Railways, organized in 1934 to promote improvement in operating methods, cooperative action, research and greater self-regulation of the industry.

Gross revenues of Class I railroads have fallen steadily each year between 1929 and 1933, but increased slightly in 1934. Between 1920 and 1929, the gross revenues ranged between five and a half and six billion, three hundred million each year. They amounted to $5,516,598,242 in 1921, the low year in this period and $6,382,939,546 in 1926, the high year. In 1929, gross revenues were $6,279,520,544; in 1930, $5,281,196,870; in 1931, $4,188,343,244; in 1932, $3,126,760,154; in 1933, $3,095,448,888 and in 1934 they are estimated at $3,240,000,000.

Revenue Distribution.—The distribution of the operating revenues of the Class I railroads for the year 1933 is reported by the Committee on Public Relations of the Eastern Railroads to be as follows:

Labor	43.2%
Materials and supplies	16.5%
Locomotive fuel	5.1%
Equipment and joint facility rentals	3.9%
Taxes	8.1%
Loss, damage, injury, insurance depreciation and retirements	7.9%
Net railway operating income	15.3%
	100.0%

Ton-mile Earnings.—The average revenue per ton-mile of freight hauled by Class I Carriers declined from 1.051 cents in 1931, and 1.046 cents in 1932 to .997 in 1933. This represents a continuation of the steady downward trend in average revenue since 1921, when the average revenue per ton-mile was 1.275 cents. Average revenue per passenger-mile decreased to 2.013 cents in 1933 from 2.219 cents in 1932, 2.513 cents in 1931 and 3.086 cents in 1921. The decreases in average receipts per ton-mile and per passenger mile reflect decreases made to much competition and to stimulated declining passenger traffic.

Operating expenses were reduced by drastic economies between 1929 and 1933. Between the years 1920 and 1929, the operating expenses ranged between $5,827,591,146 in 1920, the highest year, and $4,414,522,334 in 1922, the lowest year in this period. Since 1929 the operating expenses were reduced each year until the present year. In 1929, they were $4,506,056,262; in 1930, $3,390,928,687; in 1931, $3,223,574,616; in 1932, $2,403,444,895; in 1933, $2,249,-

318,750; and in 1934 they are estimated at $2,435,000,000. The increase in operating expenses in 1934 was caused by restoration in part of the 10 per cent wage reduction, and increases in costs of materials and supplies.

Operating Ratio. — The efficiency of railroad operation is customarily measured by the percentage relationship between operating expenses and operating income. In 1933, the operating ratio was approximately 72.81 per cent, in 1932, the ratio was approximately 80 per cent, and in 1934, it was 75.1. The operating ratio for 1934 compares favorably with the average annual operating ratio between 1921 and 1930, when it ranged between 71.96 per cent in 1929, the lowest year, and 82.80 per cent in 1921, the highest year, although not so favorably as the year 1933.

RAILROAD TAXES AND DIVIDENDS

The amounts paid by Class I railroads to various governmental agencies in taxes in 1934 amounted to $249,602,895, about $25,000,000 less than in 1933. Taxes consumed 8.06 per cent of the gross operating revenues of Class I carriers in 1933 compared to 8.80 per cent in 1933, 7.25 per cent in 1931, and 6.60 per cent in 1930.

The same carriers paid stockholders only $95,533,622 in dividends in 1933, as compared to $92,354,322 in 1932, $330,150,873 in 1931; $497,024,912 in 1930; and $490,125,673 in 1929, the peak year. The average cash dividend paid by Class I Carriers was 1.2 per cent in 1933, 1.1 per cent in 1932, 4 per cent in 1931; 6 per cent in 1930; and 6 per cent in 1929. Severe reductions in dividend rates and the omission of dividends by a number of dividend paying carriers in 1932 and 1933 greatly reduced the amount of dividend payments and the rate of dividend for Class I carriers considered as a whole.

The tax and dividend payments of Class I Carriers for the period 1921-1933 are shown in the following tabulation:

Year	Railroad Tax Payments	Percentage Ratio of Taxes to Gross Operating Revenues	Dividend Payments	Average Cash Dividend (Per Cent)
1921	$275,875,990	5.00	$298,511,328	4.1
1922	301,034,923	5.42	271,573,751	3.7
1923	331,915,459	5.28	296,127,048	4.0
1924	340,336,686	5.75	320,429,767	4.2
1925	358,516,046	5.86	342,020,885	4.5
1926	388,922,856	6.09	399,243,963	5.2
1927	376,110,250	6.13	411,581,093	5.3
1928	389,432,415	6.37	430,677,138	5.3
1929	396,682,634	6.32	490,125,673	6.0
1930	348,553,953	6.60	497,846,351	6.0
1931	303,528,099	7.25	330,150,873	4.0
1932	275,135,399	8.80	92,354,322	1.1
1933	249,602,895	8.06	95,533,622	1.2

FREIGHT TRAFFIC

The freight traffic of railroads in the United States has been adversely affected by the depression in business and by the competition of other carriers. The loss of traffic is indicated by the sharp decline in freight traffic originated, in total freight traffic transported, and in ton-miles transported in between 1929 and 1932. In 1934, the volume of freight traffic showed an increase. The preliminary figures for 1934 available at this time indicate further improvement over 1933.

Class I Carriers of the United States originated 698,942,511 tons of freight in 1933 as compared to 646,-

222,818 tons in 1932, and 894,185,637 tons in 1931, an increase of approximately 50,000,000 tons of freight traffic over 1932. The total freight tonnage transported fell from 1,605,034,171 tons in 1931 to 1,168,288,594 tons in 1932, but rose to 1,258,826,084 tons in 1933. The revenue ton-miles transported in 1932 amounted to 233,977,008,000 ton-miles compared with 309,224,879,222 ton-miles in 1931; 383,449,588,491 ton-miles in 1930; and 447,321,561,129 miles in 1929. In 1933, however, the ton-mileage increased to 249,779,148,000 ton-miles, and the preliminary estimates for 1934 place the ton-mileage at approximately 294,400,000,000 ton-miles, an increase of 7 per cent over 1933 and of 14.4 per cent over 1932.

(000,000 Omitted)

Year	Railroad Tonnage Originated	Tonnage Transported	Ton-Mile Transported
1921......	940	1,690	306,804
1922......	1,023	1,840	339,285
1923......	1,279	2,333	412,727
1924......	1,187	2,171	388,415
1925......	1,247	2,304	413,814
1926......	1,336	2,465	443,746
1927......	1,281	2,363	428,736
1928......	1,285	2,361	432,915
1929......	1,339	2,451	447,321
1930......	1,153	2,063	383,787
1931......	894	1,605	309,224
1932......	646	1,168	234,320
1933......	699	1,259	250,000

The tonnage originated in 1933 was divided among the following classes of tonnage:

Commodity Group	Approximate Percentage of Total Traffic Originated
Products of mines..............	56.5
Manufactures and Miscellaneous..	22.5
Products of Agriculture..........	11.7
Products of forests.............	4.7
Animals and products...........	2.5
All less than carload traffic......	2.1
Total.......................	100.0

PASSENGER TRAFFIC

The passenger business has declined each year between 1923 and 1933, but showed a slight increase in 1934. In 1933 the Class I railroads transported 432,950,000 revenue passengers, a decrease of more than 46,000,000 as compared with 1932 and more than 118,000,000 less than in 1931, when 596,390,924 fare-paying passengers were transported. The number of passenger-miles transported declined from 21,894,420,536 in 1931 to 16,974,591,000 in 1932, and to 16,345,047,000 miles in 1933. In 1934, however, the passenger-mileage is estimated at 17,875,000,000 passenger-miles an increase of 9.4 per cent over 1933. In 1920 the Class I carriers carried 1,234,862,048 passengers, and performed nearly 47,000,000,000 passenger-miles of service. The check in the decline in passenger traffic is one of the encouraging developments in 1934.

The average revenue per passenger-mile continued to decrease from 2.513 cents in 1931 to 2.219 cents in 1932, and 2.013 cents in 1933, a decrease in average rates per passenger-mile of 35 per cent below 1921 averages as a result of passenger rate reductions, and relative increase in passenger commutation traffic.

Railroad passenger traffic, railroad passenger-miles, and average receipts per passenger-mile for Class I carriers for the years in round figures are shown below:

Year	Passengers Transported	Passenger Miles Transported	Average Revenue Per Passenger Mile (Cents)
1921..	1,035,000,000	37,312,000,000	3.086
1922..	967,000,000	35,469,000,000	3.027
1923..	986,000,000	37,956,000,000	3.018
1924..	932,000,000	36,090,000,000	2.978
1925..	888,000,000	35,950,000,000	2.938
1926..	862,000,000	35,477,000,000	2.936
1927..	829,000,000	33,649,000,000	2.896
1928..	790,000,000	31,601,000,000	2.850
1929..	780,000,000	31,074,000,000	2.808
1930..	703,000,000	26,814,000,000	2.717
1931..	596,000,000	21,984,000,000	2.513
1932..	478,000,000	16,974,000,000	2.219
1933..	433,000,000	16,345,000,000	2.013

NET RAILWAY OPERATING INCOME AND RATE OF RETURN

The preliminary estimate of the Association of American Railways places the net railway operating income of Class I railways for 1934 at about $445,000,000 as compared with $474,000,000 in 1933 and $326,298,000 for 1932. The estimated return for 1934 will yield a return for Class I railroads as a whole of 1.7 per cent upon the property investment, as compared with the return of 1.8 per cent in 1923 and 1.25 per cent in 1932. This is some improvement over 1932 but still a meager return.

Trends in net railway operating income and in the rate of return upon the property investment of Class I carriers for the years 1921 to 1934 are shown below:

Year	Net Railway Operating Income	Rate of Return (Per Cent)
1921	$ 600,937,356	2.87
1922	760,187,319	3.59
1923	961,955,457	4.33
1924	973,837,202	4.23
1925	1,121,076,341	4.74
1926	1,213,089,966	4.99
1927	1,067,985,495	4.30
1928	1,172,864,100	4.65
1929	1,251,697,938	4.84
1930	868,878,773	3.30
1931	525,627,852	2.00
1932	326,298,000	1.25
1933	474,000,000	1.80
1934	445,000,000	1.70

CONTROL OF PRODUCTION

By William F. Notz

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GOVERNMENT CURTAILMENT PROGRAM

Agriculture. — During 1934 artificial restriction and control of production assumed nationwide, and in some cases, worldwide proportions. In the United States a national program for adjusting supply and demand was carried out under the direction of the Federal Government through the AAA and the NRA. The curtailment measures were directed primarily against actual or potential surplus production in agriculture. Up to Nov. 1 a total of $421,697,000 was paid by the Federal Government in rental and benefit payments to farmers to compensate them for cooperation in making adjustments in their production. For removal of surplus agricultural commodities, disbursements of $169,389,000 were made.

Mining and Manufacturing.—Systematic limitation of output under Government control was undertaken also in certain fields of mining and manufacturing.

New legislation was enacted by the Federal Congress for stabilizing the domestic cotton industry (the Bankhead Cotton Control Act), the tobacco industry (the Kerr-Smith Tobacco Act), and the sugar industry (the Jones-Costigan Act). Comprehensive programs were worked out and announced for continuing the policy of control during 1935.

Adjustments.—The effects of the drought during 1934 made necessary certain adjustments. The control machinery in operation thus far had been hastily devised to meet emergency conditions, and in some instances has proved too complicated and annoying, calling for greater simplification and flexibility. In order to test the sentiments of the farmers and to gain their voluntary cooperation, the AAA undertook several referendum votes before shaping its policies for the coming year.

Submarginal Land.—A new feature of the Government's program consists in the initiation of a policy dealing with submarginal land. Under the new Taylor Act some 80,000,000 acres may be taken out of the public domain and placed under the administrative control of the Department of the Interior. A fund of $25,000,000 has been set aside for the purchase of submarginal land. It is contemplated to establish cooperative grazing associations on land so acquired, and to develop there a program of conservation and soil erosion control.

COTTON

On account of drastic reduction the supply of American cotton in 1934 was 6,000,000 bales lower than two years ago. In order to stabilize the production and marketing of cotton, Congress enacted the Bankhead Cotton Control Act. Its purpose is to limit the 1934 cotton crop to 10,000,000 bales. According to estimates by the AAA about $100,000,000 will be paid in 1934 to farmers cooperating in the cotton adjustment plan for withdrawing approximately 15,000,000 acres from cotton production. In November the AAA announced its 1935 program which calls for a reduction of cotton acreage of 25 per cent below the base period of 1928-1932. On Dec. 14 the cotton farmers in 16 southern states voted in favor of compulsory crop control by continuance of the Bankhead Act through 1935.

WHEAT

The reduction of winter wheat plantings for 1934 in the 11 principal producing states (Kansas, Oklahoma, Texas, Nebraska, Illinois, Ohio, Indiana, Missouri, Colorado, Washington and Pennsylvania), was about three-fourths of the reduction expected as a result of the wheat reduction campaign of the Federal Government. The actual reduction in acreage was estimated at 3,267,000 acres. For the country as a whole the net reduction in acreage was 7.2 per cent under the 3-year average base. Wheat farmers received up to Nov. 1, 1934, $108,669,000 for participation in the wheat adjustment program. The acreage permitted to be planted by contracting wheat farmers in 1935 has been set at not less than that planted in 1934, or 85 per cent of the base period. The processing tax of 30 cents a bushel will be continued, out of which adjustment payments of $102,000,000 are expected to be paid. About 51,500,000 acres of the nation's base wheat acreage of 66,000,000 acres are covered by contracts.

CORN HOGS

Under the corn-hog reduction program of 1934 all hog producers were permitted to qualify for hog reduction payments by reducing their hog litter average and production of hogs for market by not less than 25 per cent. Up to Nov. 1, 1934, corn-hog farmers received rental and benefit payments amounting to $129,668,000. Commercial slaughter supplies of hogs in the United States in the 1934-35 hog-marketing year, were the smallest in more than 20 years. The marked decrease in domestic hog production was brought about by the unfavorable relationship between hog and corn prices since the middle of 1933, the operation of the 1934 corn-hog adjustment program and the severe drought and resulting shortage in feed supplies during 1934. In a referendum undertaken by the AAA over two-thirds of the corn-hog voters favored a curtailment program for 1935. The new plan provides for a 90 per cent maximum corn acreage or a cut of 10 per cent below the 1932-33 base average. It is estimated that under normal weather conditions the 1935 plan will permit the production of about 250,000,000 bushels of corn in excess of the estimated requirements for livestock feeding.

CATTLE

During 1934 a total of 7,737,000 head of cattle and calves was purchased by the AAA on 578,000 farms in drought states at a cost of $103,000,000. In addition $10,000,000 was set aside to buy sheep and goats. All animals so acquired are for relief. Up to Oct. 6, 1,910,503 head of ewes had been purchased.

As part of the program of control of cattle production the testing of herds to speed up eradication of tuberculosis and Bang's disease was undertaken by the U. S. Bureau of Animal Industry. Up to Oct. 1, 1934 $558,362 were paid in indemnities for cattle slaughtered on account of bovine tuberculosis, and $51,737 for eradication of Bang's disease.

In order to avoid the menace of governmental dumping of hides from the slaughtered drought cattle and to revive the leather industry, tanners were notified in September that the

Federal Surplus Relief Corporation would take over all such hides and skins for relief purposes. For this purpose $10,000,000 has been set aside. The hides thus obtained are to be utilized for unemployment relief.

DAIRY PRODUCTS

In continuation of the plan of surplus removal of dairy products begun in 1933, the Land O'Lakes Creameries, Inc., the Dairy Marketing Corporation and the Federal Emergency Relief Administration purchased 51,572,000 pounds of butter up to April, 1934, inclusive. This surplus butter was distributed for relief purposes. Since June, 1934, awards to the extent of 16,160,000 pounds of butter have been made, and since January, 1934, bids have been awarded on 13,932,000 pounds of cheese, of which 2,805,000 was Swiss cheese taken from the country factory shelves to relieve a burdensome surplus.

TOBACCO

The Kerr-Smith Tobacco Act of June 28, 1934, is a restrictive measure designed to limit the production of tobacco. It penalizes growers who exceed allotment quotas by placing an *ad valorem* tax of 33⅓ per cent unless the Secretary of Agriculture designates a lower rate, which may not be less than 25 per cent on all tobacco produced in the 1934 season by growers who have no allotments under the voluntary adjustment program, except Maryland tobacco, Virginia suncured, and cigar leaf. For 1934 the tax was fixed at the minimum of 25 per cent. Up to Nov. 1, tobacco farmers had received $16,572,000 for participating in the tobacco adjustment program.

PEANUTS

Earlier in the year Congress designated peanuts as a basic agricultural commodity under the Agricultural Adjustment Act. Under a special production control plan, announced in November, it is contemplated to stabilize supply and demand by diverting a portion of the 1934 crop into oil or feed for livestock, and limiting acreage in 1935 to 90 per cent of that of 1934. Part of the program became effective in October, when more than five per cent of the total indicated 1934 crop was diverted from the cleaning and shelling trade into manufacture of peanut oil.

SUGAR

Under the provisions of the Jones-Costigan Act, designed to limit sugar imports into the United States, sugar quotas were determined by the AAA for 28 foreign countries other than Cuba. The total allotments for 1934 amounted to 33,800,000 pounds. The entire beet-sugar marketing quota of the nation, amounting to 1,556,166 tons, was allotted by the Secretary of Agriculture among 27 beet-sugar processors. The quota was divided between Western and Eastern sugar-producing areas in exact proportion to their respective production in 1932 and 1933. The quota allotted to each area amounted to a reduction of 2.6 per cent below the average production in the past two years.

RICE

On March 6 a new marketing agreement became effective for the southern rice industry (Louisiana, Arkansas and Texas), designed to provide parity prices for the 1934 crop to farmers cooperating in crop control. It provides for curtailing production by 20 per cent of the average 5-year period, 1929-33. Growers who contracted to restrict acreage were to receive benefit payments equal to 40 per cent of parity from the trust fund which the rice millers had agreed to establish.

FRESH FRUITS AND VEGETABLES

Through marketing agreements covering fresh fruits and vegetables, fluctuations in supply and prices have been greatly reduced, and excessive gluts between markets and between different periods of the marketing season have been prevented. In other cases, such as canned peaches, citrus fruits, fresh asparagus, etc., methods were developed for holding back from the market excessive supplies and diverting the excess to byproducts or for relief purposes. The California asparagus canning industry was placed under a license on March 6 for the purpose of restricting the total pack for the season by fixing an opening and closing date for the canneries.

COFFEE

Destruction of surplus stocks of coffee was continued in 1934 under the direction of the Brazilian National Coffee Department. During the crop year July 1, 1933 to June 30, 1934, 10,816,000 bags of coffee were destroyed, against 9,949,000 bags in 1932-1933. Since the beginning of the program to eliminate surplus stocks in June 1931, up to October, 1934, the Brazilian Government destroyed a total of 32,289,000 bags of coffee, or more than 16 months consumption for the entire world. In May the National Coffee Department announced that it would continue to exercise control of crop for 1934-1935 by fixing production quotas for the individual states and percentages of the crop for compulsory delivery to the Department at a fixed price.

PETROLEUM

Conservation and regulation of petroleum production was carried on in 1934 by the Petroleum Administration Board, which operated under the oil code of August, 1933. Each month the Federal Oil Administrator, Secretary of the Interior Harold L. Ickes, announced the daily allowable production quota. The daily crude allowable quota varied from 2,183,000 barrels in January to 2,307,000 barrels in December. The actual daily average crude production varied from 2,321,000 barrels in January to 2,440,000 barrels in November. The total production for the year was estimated at 858,195,000 barrels.

MACHINERY

Control and limitation of output through restriction in the use of machinery was provided for in more than 50 of the codes ratified under the NRA. For example, in the solid-braided cord code, operation of productive machinery was limited to two shifts of 40 hours each per week. The code contains also a recommendation calling for registration of all productive machinery and certification of necessity from the code authority before the installation of additional machines.

INTERNATIONAL AGREEMENTS

Rubber.—On April 28, 1934 an international rubber restriction and regulation agreement was entered into by representatives of the Rubber Growers' Association (British), the Internationale Vereeniging De Rubber En Andere Cultures in Nederlandsch Indie (Dutch), the Union des Planteurs de Cautchouc en Indo-Chine (French), and delegates of the Government of Sarawak and of Siam. The agreement provides that the contracting parties are to limit the net exports of rubber from their respective territories to such percentage of the base quota applicable to each, as shall for the time being be fixed by the International Rubber Regulation Committee. The principal office of the Committee is located in London. The agreement is to run from June 1, 1934 to Dec. 31, 1938. Basic annual quotas were determined for each member for the period of the agreement, which also includes regulations for the restriction of planting and replanting, exporting of seeds, buds and roots, for propaganda, disposal of stocks and carryovers. For 1934 the Regulation Committee fixed the percentages of the basic quotas which may be exported as follows: June-July, 100; Aug.-Sept., 90; Oct.-Nov. 80; Dec. 70.

Wheat.—At the 6th International Wheat Conference in Budapest in November a report of the International Wheat Advisory Commission of London stated that the glut of world wheat stocks still menaces prices, making continued acreage reduction a necessity. It was reported that the world wheat pact for 1934 had been undermined by dumping, price cutting and government subsidies of several countries, principally Argentina and France. Soviet Russia was represented at the conference for the first time.

The world carryover of stocks of wheat was estimated to be about 800,000,000 bushels on Aug. 1, 1935, compared with 1,140,000,000 on August 1, 1934. During 1934, reductions in planted acreage of wheat by the signatory nations were as follows, as compared with the previous three-year average: United States, 12 per cent; Australia, more than 15 per cent; Canada, 10½ per cent; Argentina 5-10 per cent; Germany, 5 per cent; Italy, 4 per cent; France, 1 per cent. The actual exports of wheat. as compared with the export quotas for the year ended July 31st were as follows:

WHEAT EXPORTS

(In Millions of Bushels)

Country	Quota	Actual
United States.......	247	127
Canada............	200	195
Argentina..........	110	144
Australia...........	105	90
Danubian countries..	54	36
Russia.............	no quota	27

The conference at Budapest adjourned without reaching a new agreement, subject to call by the chairman. In the meantime the terms of the old agreement continue.

LIFE INSURANCE

By Wendell M. Strong

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GENERAL

Life insurance in the last few years has been a kaleidoscope of problems, these changing from one year to the next. From the early part of 1933 through the year 1934 there has been a complete reversal in such matters as policy loans and surrenders. Up to the spring of 1933 there was an increasing demand for cash, both through policy loans and by surrender of policies, this reaching its climax just prior to the moratoria imposed by many states on such demands in March and April of that year. By the end of the year the picture had changed, the moratoria had been terminated, and cash was accumulating. In 1934, the situation of early 1933, was reversed and the companies instead of being drained of cash have a surplus, with their most difficult problem that of finding suitable investments. The tendency in policy loans to increase from year to year, which had been uninterrupted, was also reversed and policy loans have been decreasing instead of increasing. Again, the downward tendency in recent years in the amount of insurance issued has been reversed; 1934 will show an increase over 1933. Assets will show a much greater increase than in recent years.

A notable feature is that annuities, which in most companies have been relatively unimportant, have in 1934, been issued in an amount much greater than ever before. As a result of the decreased opportunities for investment, there has been a marked tendency in the companies to restrict the investment types of policies, including annuities, either by limiting the amount taken or by the withdrawal of some forms heretofore issued. The institution of life insurance has come through the trying times of the last several years in a remarkable way. The confidence of the public in the companies is not only unimpaired but apparently increased by the record that has been made.

NEW BUSINESS

In 1933, the decrease from the previous year in amount of insurance issued was much smaller than it had been in 1932. In 1934, the indications of the first eleven months are that there will be a considerable increase over 1933. As shown in the following table this increase is about 9 per cent but probably for all companies, and the whole year, it will be considerably more. If there are no further serious business setbacks from the present level it can be hoped that the downward trend in new insurance has been terminated and the upward one resumed. It will, however, require a great increase from the present level to get back to the amount that was being issued in the most prosperous years.

NEW INSURANCE

(Association of Life Insurance Presidents)
(42 companies having 83% of insurance in force in all U. S. companies on December 31, 1933)
(Dollars in millions. First eleven months of each year)

	1932	1933	Per cent increase	1934	Per cent increase
Ordinary insurance	$5,473	$4,669	−14.7	$5,054	8.2
Industrial insurance	2,322	2,127	−8.4	2,287	7.5
Group insurance	559	302	−46.1	426	41.2
Total insurance	$8,355	$7,097	−15.1	$7,767	9.4

NOTE:—This table is only for the purpose of showing the tendency, so far as it is known, in 1934. It corresponds only roughly with results for all insurance in all companies in previous completed years.

ASSETS AND INSURANCE IN FORCE Even in such unfavorable years as 1931 and 1932, the companies showed a small gain in assets; it will be considerably greater in 1934. In the two preceding years there have been very considerable decreases in total insurance in force, amounting to approximately 10 per cent of the total at the beginning of the period. With the slight increase in new insurance, and the great decrease in terminations, this has been changed so that 1934 should show a position not greatly different from that at the beginning of the year, with either a small increase or a comparatively slight decrease.

SURRENDERS AND LOANS

(New York Insurance Report)
(Companies Reporting to the State of New York. Dollars in millions)

Year	Number of Companies	Amount in Force (End of Year)	Amount of Policies Surrendered*	Amount of Policies Lapsed*	Paid for Surrendered Policies	Policy Loans (End of Year)
1933	53	$68,177	$3,624	$2,551	$1,177	$3,191
1932	53	71,478	3,556	3,292	1,137	3,188
1931	52	74,636	2,264	2,934	718	2,798
1930	52	73,568	1,710	2,792	517	2,337
1929	49	69,886	1,370	2,264	375	1,992

* Includes group insurance but not industrial.

ORDINARY INSURANCE

	1933	1932	1931
Number of companies	252	260	274
Amount terminated by death	$ 698	$ 723	$ 732
Amount terminated by surrender or lapse	8,211	9,360	7,657
Total amount terminated	$11,420	$12,303	$10,113

INVESTMENTS

The most difficult problems that the companies have had to face have been on the financial side; both because some investments that had in the past been good turned out to be bad, and because it was difficult properly to invest funds that were accumulating in their hands. In the investments held, what had been regarded as the best class of securities—good railroad bonds, good utility bonds, and municipals—have all had their failures, and probably no company with a considerable amount of investments has entirely escaped loss through some of its bonds defaulting.

Mortgages have been just as difficult, or perhaps even more so, in that many mortgagors have been unable to keep up their payments and a large number have had to be foreclosed, even the most conservative companies not escaping. With the great decrease in the value of real estate this also will cause some loss in income since rarely do foreclosed properties return anything beyond a meager income and sometimes, none at all. These losses, however, while considerable, have not been such as to impair, or even threaten for the future to impair, any company of importance.

Added to the difficulties with existing investments is that of making proper new investments. In this respect the present depression is different from preceding ones since satisfactory new investments are available only at extremely low rates of interest. Since the structure of life insurance is founded on the assumption that a certain rate of interest will be earned, as well as on the assumption of mortality to be expected, the inability to invest at a satisfactory rate is very troublesome. If the prevailing low rate of interest continues it will doubtless be necessary for the minimum reserve rate permitted by statute to be decreased from the present 3 per cent.

AMOUNT OF INSURANCE—ASSETS—INCOME—DISBURSEMENTS

Including Ordinary, Industrial and Group Business

(*Insurance Year Book.* Dollars in millions.)

ALL UNITED STATES COMPANIES

Year	Number of Companies	New Business	Amount in Force (End of Year)	Admitted Assets (End of Year)	Surplus* (End of Year)	Total Income	Total Disbursements
1933......	318	$13,787	$ 97,985	$20,896	$1,827	$4,622	$3,917
1932......	328	14,514	100,154	20,754	1,944	4,653	3,998
1931......	342	17,226	108,886	20,160	1,858	4,850	3,538
1930......	352	19,020	107,948	18,880	1,825	4,594	3,199
1929......	353	19,267	103,146	17,482	1,767	4,337	2,882
1928......	331	18,674	95,206	15,961	1,678	4,088	2,548

* Includes amount set apart for dividends to policyholders during following year.

ANNUITIES

Some of the results of the general financial situation and the low interest rates appear in the sale of annuities. Until recently annuities have constituted an unimportant feature with most companies. In 1934, however, the demand has been tremendous and the year will show amounts of annuities issued greatly in excess of any previous year. A number of factors have contributed to account for this: (a) While a multitude of supposedly good investments have ceased paying an income and faded away in value, the life insurance companies have stood out as of unquestionable financial solvency. This has led the public to turn to such institutions for the secure income provided for by annuity contracts. (b) The low rate of interest on investments has made the return from annuities look very favorable compared to what it did when investments returned a better rate of interest.

(c) It has been known for a considerable time that there was a probability of the price for annuities being increased and this has been an inducement to purchase an annuity before the increase took place.

A considerable amount of the surplus cash which the companies have looking for investment has come from this sale of annuities. The decrease in the interest rate has resulted in the premium rates for annuities, which heretofore were sufficient, becoming insufficient. Consequently nearly all companies have increased the price of these annuities.

PAYMENTS TO POLICYHOLDERS—INTEREST RATE

Including Ordinary, Industrial, and Group Business
(*Insurance Year Book.* Dollars in millions.)

	ALL UNITED STATES COMPANIES:						100 COMPANIES:
Year	Number of Companies	Premums Received	Dividends Paid	Death Losses Paid	Surrenders and Lapses	Total Payments to Policyholders	Rate of Interest on Mean Invested Funds
							Per cent
1933......	318	$3,322	$499	$877	$1,357	$3,016	4.75
1932......	328	3,504	563	905	1,346	3,087	5.08
1931......	342	3,661	585	915	861	2,607	5.23
1930......	352	3,524	554	856	614	2,247	5.31
1929......	353	3,350	513	808	448	1,962	5.33
1928......	331	3,146	466	706	369	1,699	5.30

CHANGES IN POLICY PROVISIONS

The situation leading to the moratorium of 1933 has brought vividly before the life insurance companies the danger of providing the equivalent of a demand deposit in the cash and loan values, something foreign to the fundamental idea of having life insurance assets invested in long term securities. As a consequence, there has since the spring of 1933 been a continuous consideration of the problem involved, with the result that beginning in January, 1935 the policies of many of the most import companies will contain a clause providing for the option of deferring payment of cash loan and cash surrender values for a period not greater than six months. This is a counterpart of the option of a delay period for savings-bank accounts and for time deposits in other banks.

The idea that there should be a cash value for each policy which could be taken at the will of the policyholder is something inconsistent with the fundamental idea of life insurance, which is that the policy will continue in force until terminated by the death of the insured, or maturity as an endowment.

The fundamental idea requires the assumption of a minimum rate of interest and involves the further idea that the funds can be invested with no prospect of the necessity of realizing on investments unless called for by death claims. The introduction of demand cash loan and cash surrender values requires liquidity foreign to this fundamental idea and in effect puts the companies in the position of banks of deposit. The step above mentioned, taken by many companies, is in the direction of restoring life insurance to its proper function and eliminating a danger which had crept in.

Another important change has been a slight reduction by many companies in the cash and loan values provided for in their policies. It was considered that the former scale meant, in the case of each policy surrendered within a considerable number of years from its date, a loss to the company. The only way to avoid this was to reduce the cash values enough to meet the situation so that in case of a termination by surrender the premium received would pay for the expenses, risk carried, and surrender value paid. This again is an important change in the right direction.

CHANGE IN RESERVE BASIS AND PREMIUM RATES

A number of the largest and many small companies have been on a 3½% interest basis. This meant that the companies must earn 3½% on their investments to maintain the required reserve. Many of these companies, including the largest of all, have now changed to a 3% reserve basis. Such change involved an increase in premiums charged.

DIVIDENDS ON POLICIES

The changes for dividends payable in 1935 are somewhat more mixed than the changes in the three preceding years, which were nearly all reductions. There will be a very few increases, some will remain the same, and there will be a large number of reductions. The gradual reduction in interest rate earned, through new investments paying at a low rate, tends to reduce dividends, since part of most policy dividends comes from the excess of interest earned over the rate required to maintain the reserve. With the reduction in average rate earned this excess naturally is reduced.

The change is necessarily more important on policies having a large reserve than on those where the reserve is small, thus affecting policies that have been in force for a long time more than corresponding ones which have been recently issued, and affecting high premium policies, such as endowment and limited payment life, more than lower premium policies, such as ordinary life.

INDUSTRIAL INSURANCE

ALL U. S. INDUSTRIAL COMPANIES

(*Insurance Year Book.* Dollars in millions.)

Year	Number of Companies	Number of Policies (in millions)	New Business	Amount in Force (End of Year)	Amount Terminated by Death	Amount Terminated by Surrender and Lapse	Total Amount Terminated
1933......	66	82	$4,673	$17,154	$149	$4,515	$4,797
1932......	68	83	4,793	17,265	154	5,450	5,811
1931......	68	88	4,847	18,274	159	4,412	4,781
1930......	69	89	4,860	18,287	158	4,101	4,490
1929......	68	89	3,738	17,902	....	......	......
1928......	65	86	4,505	16,686	....	......	......

FRATERNAL INSURANCE

ALL U. S. FRATERNAL ORDERS SHOWING FIGURES

(*Insurance Year Book.* Dollars in millions.)

Year	Number of Orders	New Business	Amount in Force (End of Year)	Assets (End of Year)	Total Income	Total Disbursements	Net Amount Received from Members	Paid for Claims
1933....	206	$502	$6,395	$906	$193	$156	$152	$111
1932....	226	600	7,123	882	212	167	164	117
1931....	242	671	7,301	895	236	207	185	132
1930....	255	1,287	8,946	882	251	199	199	147
1929....	269	984	9,155	834	258	201	200	154
1928....	262	1,040	9,324	824	245	182	197	140

MORTALITY AND DISABILITY

There is not much to be said with reference to the mortality experience in 1934, there being, so far as is known, no great change. Losses under the provision for benefits in event of total and permanent disability have continued much the same as in previous years, but due to the fact that many companies ceased writing this provision several years ago and other companies increased the premium for it very greatly, the kind of business which occasioned the loss and which is still in force is decreasing in amount, and it is quite probable that the total loss will be less than in the latest previous years.

INDUSTRIAL INSURANCE

The percentage of gain in amount issued under Industrial Insurance is very nearly the same for the first eleven months of 1934 as in ordinary insurance.

FIRE INSURANCE

BY EDWARD N. HARDY

SECRETARY-TREASURER, INSURANCE INSTITUTE OF AMERICA

PREMIUMS WRITTEN

The business of Fire Insurance is closely tied up to the economic conditions of the country. Steady decrease in values, beginning with the latter part of 1929, was in due time reflected in the business of the Fire Insurance companies. In 1932 the premiums written, using round numbers, were $500,000,000; in 1933 $460,000,000. The increase in 1934 is estimated to be about 6%, so for that year the premiums written will show approximately $490,000,000. The increase, while slight, is of some moment.

FIRE LOSS

A distinguishing feature in 1933 and 1934 was the reduction in the fire loss. In 1932 the losses paid were approximately $310,000,000 and in 1933 $210,000,000. In 1934 the fire loss will prove to be about the same, or possibly somewhat less than the 1933 figure. It is an interesting fact that this reduction in the total fire loss is not due to a very large decrease in the number of fires. Thus in 1933 as compared with 1932, the reduction in the number of fires was about 3½%, but in the average loss per fire the reduction was nearly 30%. This phase reflects changing conditions in business. Neither the merchant nor the manufacturer is stocking up or making much in advance of current demand, the result being that the property exposed to a fire is less than was the case prior to 1930. Whether this will continue to be so is perhaps a debatable question, but it probably is safe to say that it will continue throughout 1935 unless there is a remarkable change in economic conditions.

The National Board of Fire Underwriters which compiles the statistics for fire losses, which should not be confused with insurance losses from fires, give the losses for 1932 as $442,000,000, for 1933, $316,000,000, and foreshadow a loss of approximately $30,000,000 less for 1934.

RATES

The average rate of fire insurance in the United States has been steadily decreasing for some years and this tendency has been accentuated since 1929. The figures recently published by the Insurance Department of the State of New York show that the decrease in these last five years is approximately 15 cents. To state that this is substantial is to put it very mildly indeed. Probably two of the primary causes are the increase in fireproof properties of large value and the extension of protection of manufacturing and mercantile properties by sprinkler equipments. It is estimated for one important section of the country that the introduction of sprinkler equipment reduces the average rate of the properties in which it is installed about 65%.

"SIDE LINE" INSURANCE

The Fire Insurance companies write many lines of insurance in addition to the straight fire insurance. These are commonly referred to as ''Side Lines'' and include: Ocean Marine, Motor Vehicle, Earthquake, Inland Marine, Tornado, Hail, Sprinkler Leakage, Riot, etc., Aircraft, and others. The value of these side lines from an income standpoint will be realized when it is stated that their premiums equal about one-fourth of the total receipts of the Fire Insurance companies. Thus in 1933, while the total premiums written were $607,000,000, the fire premiums were $459,000,000; the difference, $146,000,000, represents the side line premiums. The ratio of the side line premiums to the fire premiums will run about the same in 1934.

The most important development of the past five years in the lines written by Fire Insurance companies is the Inland Marine. While the premiums in this branch are not at present very large, amounting to about $25,000,000, it is considered to be the line which will show the most rapid growth in the coming years. Only future experience can demonstrate the truth or untruth of this prophecy.

INSURANCE PROBLEMS

It is always a question whether adversity or prosperity brings the most serious problems to the business of Fire Insurance. Probably the underwriter would wish not too much of either one. The low loss figures, which may, by a conflagration, be overturned in a day, lead to an immediate demand for a reduction in the rate of insurance which, if the experience of years is taken into account, cannot always be granted. Neither can rates be advanced immediately after a conflagration, as the experience following the San Francisco disaster has proved, but in cases of that kind there is a tendency for the volume of insurance to increase rapidly and thus assist in restoring the funds of the companies.

MARINE INSURANCE

By Douglas F. Cox

President, Appleton & Cox, Inc., New York

PREMIUMS AND LOSSES

As the figures showing the transactions of 1934 will not be published in available form until 1935, it is impossible to determine at the time of writing whether the aggregate volume of premium has increased as compared with the previous year. It seems probable that there was a moderate improvement.

The figures of 1933, which were published during the current year, show $29,813,000 premium in the Ocean Marine class which is to be compared with $29,723,000 in 1932, being about on the same level, whereas in the Inland Marine class which includes transportation by land as well as ''personal property floater policies'' covering jewelry, furs, objects of art etc., the figures show $28,139,000 against $29,946,000 in 1932, a considerable decrease. In 1929 the figures for the two classes were $48,255,000 and $45,844,000 respectively. The ratio of losses incurred to premium written in 1933, however, was decidedly lower than in 1932, being 49.82% against 58.92% in Ocean Marine and 48.65% against 62.28% in Inland Marine.

While it is impossible to foretell, in the absence of published figures, what the loss ratio for 1934 is likely to be, it seems probable that it will be higher, as there appears to have been rather a more constant succession of losses, large and small, than in the previous year.

THE MORRO CASTLE

Easily the most notable of these losses was the shocking disaster to this fine vessel, destroyed by fire during a gale off the coast of New Jersey, involving astonishingly heavy loss of life among passengers and crew. Insurance was carried on the vessel in the amount of $4,200,000, partly in the American market, partly in London and partly in the insurance fund of the United States Shipping Board. A considerable part of the insurance was against the risk of total loss only.

The Federal Government was largely interested as funds were loaned to the owners to finance the building of the vessel. She was launched in 1930 and was equipped with the latest devices for protection against fire and other perils and was considered an excellent risk. The record of the fleet as shown by the comparison of losses to premiums during the last five years was excellent.

The origin of the fire has not been definitely established, but the flames spread throughout the vessel with extraordinary rapidity, and when the fire had burned itself out, after she had drifted ashore, the destruction was so complete that there was little value remaining. The Federal Government has undertaken the work of removing the wreck, an operation which will probably cost several times the realizable value.

The value of the cargo was not great, but of course such cargo as was on board was a total loss. The claims against the owners for loss of life and personal injury are in litigation, but the outcome does not affect the underwriters on the hull although some of the same underwriters who participated in what is known as the ''Protection and Indemnity'' insurance are distinctly interested.

NUMBER OF COMPANIES

In 1927, the total number of companies in the business in this country was 132, of which six wrote ocean marine only, 42 wrote inland marine only, while 84 wrote both classes. This total increased to 221 in 1931, and in 1933 stood at 209. The larger number of companies and the much smaller volume of premium results in extremely fierce competition which again results in difficulty in obtaining adequate rates, many sub-divisions of the business being written at less than cost.

Moreover, similar conditions exist in the London market and, as American marine insurance is easily placeable there, underwriters here necessarily must take into consideration the rates obtainable in London. This condition has been particularly bad during the current year, although many leading underwriters in London freely state that the results will inevitably be very costly to the companies.

OVERLAPPING POWERS

The movement (see THE AMERICAN YEAR BOOK, 1933, pp. 425, 426) to settle the vexed question of what forms of policy should properly be issued by Marine underwriters as opposed to Fire and Casualty underwriters, has progressed to the point where the Definition of Marine Underwriting Powers has been adopted by a majority of the States, and a joint committee of Marine, Fire and Casualty executives has now been functioning for nearly a year, considering contentious border-line cases and bulletining its decisions to the companies. This has quieted to a great extent the bitter feeling which had been aroused between Marine underwriters on the one hand and Fire and Casualty underwriters on the other and has undoubtedly diverted considerable premium from the Marine accounts to the other two.

GOLD

The great movements of gold back and forth across the Atlantic is a matter of great interest to Marine underwriters, as they are called upon to cover the enormous values involved, frequently exceeding in a single vessel the total capacity of the Marine insurance markets of the world. From the underwriting point of view, these insurances have advantages over almost any others but the rates are very low, and the heavy liability, added to other commitments on the hulls and cargoes of the same vessels that carry the gold, constitutes a source of great anxiety when these movements are at their height.

INTERNATIONAL UNION OF MARINE INSURANCE

Because of the unavoidably international character of Marine insurance, this organization is an interesting one. It was established with headquarters in Berlin before the great war and was revived after 1918. It has permanent officers, committees and secretariat, and its annual meetings are attended by delegates from the principal European countries. British underwriters are taking an increasing interest in its discussions and proceedings and there are even some members in the United States. One of the principal subjects of their recent discussions has been that of War Risks, including ways and means of handling such insurances in case war should be declared. The last meeting was held in London in September, 1934.

CASUALTY AND MISCELLANEOUS INSURANCE

By A. Duncan Reid

President, Globe Indemnity Company

GENERAL ECONOMIC SITUATION

The general economic situation continued during 1934, adding to the difficulties of the casualty-surety companies and preventing solution on any permanent basis of their most serious problems. It is a curious fact that the same underlying economic conditions which have so greatly benefitted the fire insurance companies during this period have had the contrary effect upon the companies writing casualty and surety lines. The casualty-surety business cannot detach itself from general business conditions, nor escape the results of general economic disturbances, and is not able, independently, to produce a complete solution for their own individual problems. Certain of the casualty forms written (notably workmen's compensation insurance) have been and are still burdened with more of the by-products of the depression and deflation than any other business, with the results that it has been impossible to escape a severe money loss.

INVESTMENT DIFFICULTIES

Casualty insurance companies are confronted with problems of two kinds: first, problems of investment and finance, and second, problems of underwriting. While these two are in a measure separable, they both depend largely on the influence of general business conditions which are for the most part beyond the control of the companies themselves.

It is difficult, and in fact impossible, at present safely to invest the companies' funds so as to produce more than a very low rate of return. It is, therefore, no longer possible for the investment return to offset any unfavorable results of underwriting and, therefore, the investment and the underwriting departments are required each to stand on its own bottom.

WORKMEN'S COMPENSATION

Unemployment Burden.—From an underwriting consideration, each form of casualty and bonding insurance involves its own and specific problems. Workmen's compensation insurance is a form which continues to present the most serious test. The year brought no relief from the pressure of the by-products of the depression or deflation, nor from the continued advance of liberal thought and action of law-makers or administration officials. The claim-mindedness of the public has now developed to a remarkable degree and continues to produce a great burden financially, as well as to enlarge the opportunity for liberal treatment of claimants by the officials charged with the responsibility of rendering decisions and making interpretations of the law. The results in 1934, therefore, continued to reflect the payment of sums which were the direct result of unemployment rather than of industrial accidents.

Occupational disease claims have increased to the point of number and severity, and one of the greatest problems of the moment is to find relief in some form for this new avenue for claims. Many of these claims reach back many years to their inception and the result is that the companies are confronted with the necessity of asuming present liability on cases which were wholly unexpected and for which no protective reserve could be set up out of the premiums paid on the policy year from which the claim springs. The present necessary reserves and payments in such cases, which must be made up out of current assets, have produced a burden for many companies, and it is thought that the ultimate cost of occupational claims is by no means yet measurable.

Rating Problem.—The rate situation in connection with workmen's compensation insurance has not been satisfactory to anyone nor can it be expected that any rate adjustment in itself can or ever will produce a complete cure for present troubles. Ratewise, however, the outlook is much more favorable than heretofore because of developments in 1934 which have brought the agents and the companies, through conference, into an agreement on a suggested program which is more likely to succeed than any heretofore tried. The increasing operating cost of this line of insurance has produced a new rating problem as the expense loading for the class has been fairly stable for a long time and supervising officials and producers are alike opposed to change.

Protection Deposits. — There continues to be a disposition on the part of many states to demand special deposits for the protection of beneficiaries under the workmen's compensation form of insurance. These special deposits will add still another burden to the companies' present difficulties.

AUTOMOBILE LIABILITY

Premium Decline.—Automobile liability insurance, which is today a major line for most casualty companies, has taken its place among the troublesome lines. The figures indicating the premiums written in the automobile liability insurance department for 1934, while not yet complete, show that there will be a material decline in the volume as compared with the year 1933. The year 1933 produced a 7.4% decline in premiums below the 1932 level.

Power and Speed.—The frequency of accidents and the severity of injuries in 1934 have set a new high mark. The causes of this result are apparent, and those causes are extremely difficult to remove. One of the major causes is the vehicle itself. Engineering improvements and refinements have produced a vehicle capable of speeds so great that the average driver is incapable of safely operating that vehicle at anywhere near its possible top speed. Wide, smooth, new roads offer an irresistable temptation to use the added power and speed of these new cars. The thirty-miles-an-hour driver we formerly knew is now a fifty-miles-an-hour man. The average tested speed on main highways has been found to be very close to fifty miles per hour. This high speed in itself makes necessary a greater concentration of the driver's attention and demands a much quicker reaction mentally in the event of emergency than the average driver is capable of giving. The result is, of course, a higher and more severe frequency of accidents.

Liquor Factor.—Recently, liquor has also taken a hand and the reports of highway officials all indicate this fact. A survey in ten states and in certain other large cities has been made, comparing the six months accident results of 1933 with the results of the same period of 1934, and from these figures two facts are apparent: first, the increase in frequency and second, the increase of cases due to drunken driving. Drivers to the number of 62,075 were involved in accidents in the six months of 1933 in the territory above mentioned; 68,582 drivers were so involved in the six months of 1934, indicating an increase of involved drivers of 6570. Accidents caused by drunken driving for six months of 1933 were 1445, while drunken driving accidents for six months of 1934 are recorded as 1914, an increase of 469. All these figures indicate the result when speed and liquor combine.

Car Age.—The operation of old cars has added greatly to the 1934 hazard. Prior to 1929 the average age of a driven car was four years. Since 1929 that age has steadily risen and today it is very much higher than the old level. On the roads today, we have vehicles which are poor or under average mechanically, and these cars are traveling on the road with the later and better and faster cars, and the result is accident frequency.

FIDELITY AND SURETY UNDERWRITING

The fidelity and surety bond underwriting shows improvement generally in 1934 results. The lessons of the past have produced a caution and a sanity of underwriting methods on the part of most companies without in any way reducing the usefulness of these lines of corporate suretyship to the public in general. There continues to be public demand greater than normal for the facilities of the companies, and the companies themselves have apparently kept pace with this demand and the evident necessity.

BURGLARY AND ROBBERY INSURANCE

Burglary and robbery insurance has proven a more popular form of coverage as the public has seen the added hazards produced by depression conditions and the increase in crime motives. New forms have been devised to care for the needs of the public as they have been developed, and it would appear that the public itself is now burglary-insurance conscious and the companies are in a position to supply this insurance need in the most modern and efficient way.

ACCIDENT AND HEALTH INSURANCE

The revised forms of accident and health insurance introduced two years ago have apparently met with the approval of the buying public and appear to have had a very excellent effect in solving to some extent the past problems of the companies which grew out of the result of underwriting loss. The situation is greatly improved, and it is hoped that the 1934 figures will be more encouraging and that there may be more optimism for the year 1935.

CLAIM SITUATION

On certain public liability lines, the effect of the economic conditions has been very severe. Claim-mindedness on the part of the public and general conditions surrounding the claim situation have had their effect but, in addition, there has been an increase actually in the physical hazards involved in many of these lines. The public liability coverage for owners, landlords and tenants is a line which has produced a country-wide problem. Rates have been adjusted but by reason of the physical condition of properties insured, due to the fact that owners are either financially unable or unwilling to keep the premises in normal physical condition and also to the claim-mindedness above mentioned, the results in 1934 will in all probability be extremely bad.

FINANCING

The Fletcher Bill, enacted by the National Congress in 1933, enabled the Reconstruction Finance Corporation to give financial assistance to some of the companies in distress last year and during 1934 additional similar loans have been made. On the whole, the end of the year 1934 will undoubtedly find a more solid front financially than before, and a preparedness on the part of the companies to meet future responsibilities greater than that of a year ago.

X. BUSINESS AND FINANCE

CHRONOLOGY OF FINANCIAL EVENTS, 1934

(From *The New York Times*, January 2, 1935)

JANUARY

Jan. 1—Henry Morgenthau, Jr. installed as Secretary of Treasury.

Jan. 2—Chairman of Reconstruction Finance Corporation announces $50,000,000 foreign gold and $24,800,000 newly mined domestic gold has been bought thus far by U. S.

Jan. 3—Congress reconvenes; unexpected evidence of docile and subservient attitude of Congress toward Executive; absence of inflationary proposals or speeches. President's message to Congress friendly, but entirely non-committal on money question. Steel output 31 per cent of capacity, against 37 week before and 26⅞ at end of previous November.

Jan. 4—President's budget message to Congress predicts huge increase in public debt as result of administration's plans; foreshadows borrowings of $10,000,000,000 in next six months, $4,000,000,000 to take up maturing debt; names $31,834,000,000 as probable national debt June 30, 1935, comparing with present $22,800,000,000 with $15,824,351,000 on Sept. 30, 1930, and with $26,348,778,000, the previous maximum of our history on Aug. 31, 1919. U. S. bonds break fractionally, then recover; stocks decline.

Jan. 6—Sharp break in U. S. bonds. Some fall ½ point. Labor Bureau's weekly price index, 71.

Jan. 8—U. S. Supreme Court upholds constitutionality of Minnesota moratorium on mortgages; decision assumed as foreshadowing court's approval of emergency powers conferred on NRA. Court's decision by 5 to 4, Chief Justice Hughes acting with majority. U. S. bonds lower; seven issues below par. Transactions on Stock Exchange for five-hour day down to 715,030 shares.

Jan. 9—Heavy break in U. S. bonds; several 1½@2 points below year's highest.

Jan. 10—Steel output unchanged at 31%.

Jan. 11—Government's purchases of newly mined domestic silver at rate of 24,421,410 ounces annually and at net price of 64½c per ounce, under executive order of Dec. 21, 1933, go into effect. Silver bullion dealers quote silver eligible for government purchase at 64⅛c per ounce, (deduction of ⅜c for delivery expenses), and silver non-eligible at 44c. British Board of Trade announces gold import into England during 1933, £251,646,839.

Jan. 12—Steel Institute reports 1933 production of steel in U. S. 22,878,000 tons, against 13,322,833 in 1932. Great Britain's 1933 production 7,002,800 tons; against 5,261,400.

Jan. 13—Rumor circulates U. S. Treasury is about to seize all gold in the Federal Reserve. Stocks weak; wheat rises 2⅜c. Labor Bureau's price index higher at 71.7; matches highest of 1933.

Jan. 15—President sends message to Congress asking authority to revalue dollar at not above 60c nor below 50, and to change value between those limits when he considers purchasing power must be kept from varying. Also asks legislation to take over Federal Reserve's gold, paying for it in gold certificates. Stock market average rises 4½ points, bonds nearly ⅝ point; stock trading of 3,743,000 shares the largest since July 21. Wheat up 4⅛c to 91¾, highest since Nov. 14, 1933; cotton up nearly ½c per pound to 11.65c, highest since July 18, 1933. Violent movement of foreign exchange against the dollar. Sterling rises from $5.09 to $5.16⅜; francs from 6.14½c to 6.40. Dollar's exchange market value falls from 63.76c to 61.22.

Jan. 16—Treasury announces ending of gold purchases and gold manipulation through RFC, under order of Oct. 24. Treasury henceforward to fix price for newly mined gold. Price of $34.35 per ounce announced by Treasury, as against $34.06 maintained by government uninterruptedly since Dec. 18. Washington valuation of dollar is thereby reduced from 60.69c to 60c, against day's foreign exchange price of 62¼c for dollar. Stock market average rises 2 points, trading 3,445,000 shares; bond average up ½ point. Wheat and cotton decline; sterling falls to $5.08½.

Jan. 17—Stocks rise, then react; bonds higher, wheat and cotton slightly lower. Foreign valuation of dollar touches 61¾c; sterling to $5.03. Steel output rises to 33 per cent.

Jan. 18—Sterling at New York breaks 6¼c to $4.94¾, lowest since Nov. 8 and 57¼c below 1933 highest of Nov. 18. Sterling at Paris falls to 79½ francs, lowest since Nov. 2 and 5⅛ francs below 1933 highest, reached Dec. 2. Labor Bureau's weekly price average rises to 71.7, the high level of 1933, reached in week ended Nov. 18. Average compares with low point of 59.6, reached in week of March 4, 1933.

Jan. 20—House of Representatives votes 360 to 40 for President's bill to devalue dollar to 50@60 per cent of present gold content, to appropriate to government resultant "profit" in Reserve System's gold, and to establish $2,000,000,000 "stabilization fund" to be administered by Secretary of Treasury. Labor Bureau's weekly price average goes above highest of 1933; at 72.3 reaches average of May, 1931.

Jan. 24—Steel output declines from 33 per cent to 32.

Jan. 26—Treasury's offer of $500,000,000 loan at 2½ per cent running thirteen and a half months, elicits $3,415,000,000 applications. Offer of $500,000,000 certificates at 1½ per cent for eight and a half months elicits $1,355,000,000.

Jan. 27—Senate adopts Dollar Devaluation Bill, 66 to 23. Silver remonetization amendment defeated, 45 to 43. Amendment to pay veterans' bonus out of government's "gold profit" on devaluation defeated by acclamation.

Jan. 30.—Dollar devaluation bill becomes law. United States Steel corporation pays one-half of 1 per cent for December quarter on preferred stock; making 4 per cent for 1933 against preferential 7 per cent. Common dividend omitted for seventh consecutive quarter. Reports earnings $18,439,997 for 1933, against $12,729,567 in 1932.

Jan. 31—President by proclamation fixes official price of gold at $35 per ounce, devaluing dollar to 59.06 cents. Markets closed before announcement; stock average having fallen 1¾ points, wheat a full cent, cotton little changed. New York Reserve Bank rate reduced from 2 to 1½ per cent; lowest on record, but also established May 3-Oct. 8, 1931. Steel output 35.

FEBRUARY

Feb. 1—Violent activity on Stock Exchange; stocks rise on average 2¾ points to high for 1934 to date, bond average up ½ point. United States Government bonds up a fraction. Foreign exchange moves sharply in New York's favor; sterling falls from $5.03½ to $4.96½. European gold valuation of dollar 61¾c, against United States Treasury's 59.06c. Gold bullion market at London rises 2s. 5d. to 135s. 6d. per ounce, highest on record. Wheat and cotton fail to rise. New York Reserve Bank rate reduced from 2 per cent to 1½, lowest on record except for period May 3-Oct. 8, 1931, when same rate established.

Feb. 2—Stocks fractionally lower, bond average crossed highest of 1933, rising ¾ point to highest since September, 1931. Government bonds slightly higher. Foreign valuation of dollar 63c, sterling falls to $4.87, lowest since Nov. 4. London gold bullion price rises 4 shillings per ounce to 139s. 6d. Wheat slightly lower, cotton little changed.

Feb. 3—Largest Saturday trading in home bonds since 1918; averages up ⅝ point; week's transactions largest in twelve years. United States Government bonds ⅛ to ¼ point higher. Stocks strong. Foreign valuation of dollar lower at 62 cents. Sterling recovers to $4.95½; gold bullion at London falls to 138s. 3d. Wheat up ⅞ cent, cotton fractionally higher. Labor Bureau's weekly price index rises to 72.8.

Feb. 5—Average price of stocks crosses high point of July, 1933, reaching highest since Nov. 13, 1931. Bond average up 1½ points to highest since Sept. 2, 1931. Day's sales of stock, 4,941,000 shares.

Feb. 6—Outbreak of popular rioting at Paris, against Cabinet and Legislature; Paris stock market holds steady.

Feb. 7—Daladier Cabinet in France resigns. Steel output 38 per cent, against 31 per cent a month before and 17 per cent in 1933.

Feb. 8—Bank of France advances rate from 2½ per cent to 3; had been 2 per cent in 1931. Advance ascribed to heavy gold withdrawals for United States, and to flight of home capital on news of Paris riots. Former President Doumergue accepts French Premiership.

Feb. 9—Drastic Stock Exchange regulation bill submitted to United States Senate. Not accepted by Roosevelt as administration bill, but due consideration promised. Stock market declines 3½ points on average.

Feb. 10—Labor Bureau's weekly average of prices 73.3; seventh consecutive weekly advance.

Feb. 13—Dollar's foreign valuation down to 59.97 cents, against 60.91 Feb. 9, and 63.55 Feb. 5; Washington valuation being 59.06.

Feb. 14—Steel output 41 per cent, highest since Oct. 11; compares with 20 per cent same week, 1933 and 28 per cent 1932.

Feb. 15—Bank of France reports gold loss of 1,976,000,000 francs for week, or $77,459,000.

Feb. 17—Weekly arrivals of gold for week, $125,000,000 in devalued dollar, $74,000,000 in previous valuation.

Feb. 19—Treasury offers $400,000,000 2½ per cent notes maturing Dec. 15, 1935, and $400,000,000 3 per cent notes due Feb. 15, 1937. Applications $3,618,164,000, allotted $847,022,400.

Feb. 21—N. Y. Central R. R. announces issue May 1 of $59,911,100 ten year 6% bonds, convertible into no-par stock, to be offered at par to existing shareholders, $1,200 bonds for each 100 shares.

Feb. 22—British Board of Trade reports visible debits in Great Britain's foreign trade of 1933 exceeded invisible credits by £4,000,000, against excess debits of £56,000,000 in 1932 and £104,000,000 in 1931, and excess credits of £28,000,000 in 1930 and £138,000,000 in 1929.

Feb. 24—First check to rise in Labor Bureau's weekly average of prices since week ending Dec. 23; total rise between then and Feb. 17 week, 4⅝ per cent.

Feb. 28—Steel output 47 per cent, highest since August, 1933.

MARCH

March 7—Steel output 49 per cent, highest since August, 1933.

March 12—House of Representatives votes 295 to 125 for Patman $2,400,000,000 soldiers' bonus bill.

March 15—Treasury's quarterly financing unexpectedly offers only $460,000,000 new notes to take up equivalent maturing nine-months' certificates bearing three-quarters of 1 per cent. Four-year notes offer at 3 per cent accepted by $455,175,500 maturing certificates. Steel output declines from 49 per cent to 48½; first decline since third week of January, ascribed to labor uncertainties.

March 19—Formal announcement of numerous modifications in Stock Exchange Bill at Washington. Bankhead Cotton Control Bill passes H. R. 251 to 114, providing that 10,000,000 bales is to be maximum cotton marketing free of ginning tax of 50 per cent of average price. Revised Stock Exchange regulation bill introduced in House and Senate.

March 20—Measure announced at Washington for twelve "intermediate" credit banks to finance long-term obligations of industry, subject to supervision by Federal Reserve Board.

March 21—Steel output unchanged at 48½.

March 25—Labor deadlock in motor industry and imminent strike averted by agreement at White House conference. Recognizes right of employes to organize into a group or groups for collective bargaining, with impartial board of three to pass on charges of discrimination.

March 27—President vetoes bill for increasing veterans' benefits $228,000,000 in salaries of United States employes. H. R. overrides veto by 310 to 72. Denver & Rio Grande Western asks holders of its $29,808,000 general mortgage sinking fund 5 per cent bonds to forego interest payment in order that the line might remain "in the list of solvent roads."

March 28—Senate concurs with House by overriding President's veto, 63 to 27. Steel output 48; second weekly decline since January.

APRIL

April 1—United States Chamber of Commerce committee reports general belief that Securities Act in existing form "is so severe and uncertain in its consequences as to be prohibitory of normal financial transactions." Amendment of Act pressed in Congress.

April 2—President Sloan of General Motors describes industrial recovery as "an irresistible force;" whose pace may, however, be accelerated or retarded by abnormal influence. Believes world recovery began in the middle of 1932. President Taylor of United States Steel declares that "last year we thought we had turned the corner and could see ahead immediate signs of revival. Today we know we have." Treasury reports $78,487,133 gold returned by hoaders in year to date, of which $27,161,403 coin and $51,325,710 certificates.

April 3—Treasury announces offer on April 15 of new twelve-year 3¼s in exchange for remainder of $1,900,000,000 Fourth Liberty 4¼s called Oct. 11, of which $899,889,000 had already assented to conversion under the time-limited offer of 4¼ per cent for one year and 3¼ thereafter. Retirement would reduce Fourth 4¼s to about $5,360,000,000, as against $6,965,000,000 at time of issue in 1918. New York State issue of $50,000,000 long-term bonds awarded to syndicate headed by City Company of New York at an interest cost of 2.887, lowest rate in its financial history.

April 4—Steel output rises to 48½ per cent of capacity. Advance of $2 to $8 per ton in steel products follows 10 per cent increase in steel wages.

April 6—Revision of Stock Exchange Bill urged; Speaker of House approves.

April 11—Steel output up from 48½ to 49½; highest rate of year to date and since August, 1933; compares with 19½ at corresponding date in 1933. Excess reserves of Federal Reserve member banks reach $1,500,000,000.

April 15—Treasury calls $1,200,000,000 more of 4th Liberty 4¼s for redemption or refunding Oct. 15. Treasury announces $797,000,000 of the $1,005,000,000 4th 4¼s called for April 15 had been exchanged for twelve-year 3¼ notes, balance to be redeemed in cash. Left outstanding, $4,300,000,000 4th Liberty 4¼s.

April 16—Sudden break in grain markets. Wheat falls 4½ cents for day, touching 80 cents for May delivery, as against 93⅝ cents Jan. 30, 71½ cents Oct. 17, $1.28⅛ June 17 and 60⅞ at April date in 1933. Corn declines 4 cents, rye and barley 5 cents, oats 3 cents.

April 17—Wheat declines 3¼c further but recovers 1½; corn falls 2¾c, regaining 2½.

April 18—Wheat declines 4⅞c, recovering 2⅛. Closing price 10c per bushel below week’s highest. Steel output rises from 49½ per cent to 52; highest since second week of August, 1933, and high mark of 59 per cent in July, 1933.

April 19—Wheat falls 4⅞ per cent further to 72⅞, decline of 12⅛c from high of April 16, but recovers to 75.

April 20—Treasury announces $815,115,500 4th Liberty bonds called April 15 had been tendered. Heavy Treasury buying of silver.

April 23—National Industrial conference board estimates accumulated demand of $4,500,000,000 for new investment capital in producing and operating industries.

April 24—United States Steel reports a net loss of $6,989,965 in quarter ended March 31, compared with a net loss of $16,730,271 in corresponding period of 1933. Treasury 3s, which had been at a discount consistently over the thirty months since issuance, reach par.

April 25—Steel output rises from 52 to 56 per cent; output Pittsburgh district up from 40 to 45, Cleveland district 60 to 69. Rise in average finished steel prices, which stand for week $1.50 per ton below 1929 average and $3.74 below 1926.

April 30—Treasury sets up $2,000,000,000 fund from ‘‘gold devaluation profit’’ for stabilization.

MAY

May 1—House of Representatives adopts $417,000,000 revenue bill of conference committee, rejecting proposal for a 10 per cent supertax on all incomes.

May 2—Steel output rises from 56 to 58 per cent.

May 3—Senate adopts tax bill.

May 4—H. R. passes Stock Exchange control bill by 280 to 84.

May 5—Department of Justice rules that future ‘‘token payments’’ by foreign governments would leave such governments ‘‘in default’’ under the Johnson Act, and would therefore preclude American subscription to new security issues by them.

May 7—Severe drought in grain belt drives wheat up 2⅞c.

May 8—Pittsburgh grand jury rejects application of Federal Attorney General for criminal prosecution of ex-Secretary Mellon on ground of income tax evasion. Severe public comment on Administration’s action. Wheat up 1⅜c.

May 9—Steel output 60 per cent, highest since September, 1930; highest of July, 1933, was 59 per cent.

May 10—Drought worse; wheat rises 5c to 90⅜c, against year’s previous highest of 93⅝, January, 30, lowest 72⅞, April 19. Monthly crop report reduces wheat forecast 30,000,000 bushels, but does not allow for severe wheat damage since May 1. Suit to compel United States Treasury to redeem gold certificates in gold coin dismissed by District of Columbia Supreme Court. New York Central $59,911,100 ten-year 6 per cent convertible bonds subscribed at 97½.

May 11—Wheat touches 93c, then reacts.

May 12—Stock Exchange bill passes Senate 62 to 13; differs from House bill on margin requirements and supervisory body. Carries amendments to Securities Act; goes to conference committee.

May 14—Wheat falls to 85⅜c on news of rains.

May 15—Wheat recovers to 88c.

May 16—Steel output rises to 61 per cent, highest of season. Generally expected reduction will follow. President approves margin requirements and Trade Commission supervision for Stock Exchange Bill, as provided in House measure.

May 21—Sales of stocks on New York Exchange 382,670 shares, smallest since June 2, 1924. Number of separate issues dealt in smallest since April 4, 1933.

May 22—President recommends to Congress purchase of silver for United States currency sufficient to bring silver money to one-fourth monetary value of total United States monetary stock. Plan received apathetically; no change in silver’s price.

May 23—Steel output down to 58 per cent; first weekly decline since

March, third in 1934. Silver fractionally lower. Stock Exchange seat sells at $96,000, against $140,000, April 12, $83,000; March 27 and $625,000 in 1929.

May 24—Prime short-dated commercial paper falls to three-quarters of 1 per cent; four to five months maturities to 1 per cent—both low-record rates.

May 26—Wheat at 94¾c passes previous high point of 1934, reached in January.

May 28—Wheat rises 5c to 98¼c for May delivery; comparing with 72⅞, April 19; 93¾, Jan. 30; $1.28⅛, July 18, 1933, and 44½, Jan. 3, 1933.

May 29—Stock trading 379,000 shares, low full-day record for year and decade. International conference over Germany's payment of external interest on other than Reich bonds ends with offer of Reichsbank for 40 per cent cash or funding into 3 per cent bonds. Decline in mark on foreign exchange.

May 30—Steel production up from 58 per cent to 59. Conference committee reports Stock Exchange Bill, maintaining 45 per cent margin provision of House bill, but creating independent supervisory body instead of Federal Trade Commission. Senate amendments to Securities Act inserted as rider.

May 31—Wheat reaches $1.03⅛ for May delivery, advance of 30¼c over April 19. Drought news from all sections.

JUNE

June 1—Conference report on Stock Exchange control bill, with Security Act amendments, passed Congress. July wheat goes to $1.06½, breaking later to $1.02⅛.

June 2—Rain in grain belt; wheat breaks to 97¾.

June 4—Treasury offers for cash $300,000,000 fourteen-year 3 per cent bonds and $500,000,000 five-year 2⅛ per cent notes, also gives privilege of funding into the new 3 per cents $175,000,000 of ¼ per cent certificates maturing June 15 and $345,000,000 2⅛ per cent Treasury notes maturing Aug. 1. Wheat declines to 96 cents. Transactions in stocks on New York Exchange 358,240 shares, smallest of year to date and smallest of any full day in ten years. National City Bank drops its security affiliate, National City Company; liquidation to follow.

June 5—Wheat rises 4 cents, crossing $1 again at Chicago; other grains up on drought news. President urges on Congress $525,000,000 appropriation for relief of drought-stricken farm belt.

June 6—Treasury announces $7,446,000,000 applications for $800,000,000 government loan offered for cash. Steel output rises from 59 per cent of capacity to 60; Chicago rate 69 per cent, highest of year to date, ascribed to threatened strike and desire of consumers to cover on expiring low-priced contracts. House of Representatives votes Tariff Bill, 154 to 63. German mark falls to 37.59 cents in exchange market, discount of 6¾ per cent; had fallen to 8½ per cent discount on Jan. 8.

June 7—Corporation bankruptcy bill becomes law; binds all creditors to reorganization plan approved by court and accepted by holders of two-thirds of total claims.

June 8—June crop report indicates smallest wheat crop since 1893.

June 9—Grain market rises only fractionally; crop report offset by news of rains.

June 13—Congress passes administration's silver purchase bill, authorizing President to buy silver at home or abroad, at not above 50 cents per ounce and declaring it to be the policy to introduce silver into United States circulation until it constituted one-fourth of the monetary stock of gold and silver combined. House vote 263 to 77, Senate, 54 to 25. Steel output rises from 60 per cent to 61; highest of 1934 to date; previously reached in second week of May, but otherwise highest since July, 1930. Morgan & Co. announce retirement from security underwriting, under new banking act.

June 14—Germany announces six months' moratorium on all external interest payments, including Dawes and Young bonds. Protests by Bank for International Settlements, and threats of retaliation by England. German external bonds break, then recover; Reich bonds close higher. Speyer & Co., Kuhn Loeb & Co., Dillon, Read & Co., announce retirement from deposit banking and continuance of security underwriting.

June 15—United States Treasury allots to cash applicants $864,338,650 in new fourteen-year 3 per cent notes and five-year 2⅛ per cent. Quarterly financing increases gross public debt $850,465,677. Total of $27,005,483,125 now outstanding exceeds previous maximum of $26,596,701,648, Aug. 31, 1919; but debt less net cash balance in Treasury's general fund is still $1,232,759,512 below 1919 maximum. J. P. Morgan & Co. publish statement of condition as of June 1, showing total resources of $344,251,627, compared with $317,837,290, on March 31, 1933. Deposits amounted to $271,823,365, a rise of $33,083,383. First time statement has been made public voluntarily.

June 18—Congress adjourns; numerous bills passed in last hours, including Frazier-Lemke Farm Bankruptcy Act for scaling down debtor's liability through new appraisal of property.

June 20—United States District Judge Faris at St. Louis decides abrogation gold clause in United States and company bonds is lawful. Appeal to Supreme Court expected. Steel output down from 61 per cent to 60.

June 26—Atchison R. R. declares dividend of $2 per share; first payment common stock since June, 1932.

June 27—Pennsylvania R. R. declares second 1934 dividend of 50 cents per share; only one 50 cent dividend paid in 1933. Steel output declines abruptly from 60 to 48 per cent, due to completion of hurried restocking caused by strike fears. New rate compares with 53 at this date 1933, but 15 per cent in 1932.

June 30—Daily iron output 48,190 tons, against 67,300 June 1.

JULY

July 2—German mark declines ⅞ cent in exchange market, on first business day since official killings at Berlin, but recovers part of loss. Day's low rate indicated depreciation of 6 per cent, against depreciation of 8½ per cent in January. German Government bonds decline 2⅛@2⅞ points.

July 3—German mark recovers ½ cent; German Government bonds up 1@2½ points. Steel output down to 21 per cent from 48 in preceding week and 60 a fortnight back.

July 5—German Government agrees to continuance of interest payment to British holders of Reich bonds during six months.

July 9—Only 316,000 shares sold on Stock Exchange in five hours; smallest business of year to date. September wheat at Chicago 87½ cents, lowest of year.

July 10—Sensationally low grain crop estimate. New York City bond issue of $72,000,000 bid for, all or any part, at 4¼ per cent rate; or at 100½, to net 4.223 per cent, all or none, or for different issues at varying rates above 4 per cent. Only one banking syndicate was bidder, and Controller rejected the bid.

July 11—Wheat rises 5 cents a bushel on heavy trading at Chicago; corn 4, oats 3, rye 5, barley 5, responding to sensational crop estimate. Sharp advance in Canadian and European wheat prices. Steel output up from 21 per cent to 27.

July 12—Wheat rises ⅞ cent; corn, rye and oats react 1¼@2⅞ cents.

July 13—Renewed outburst of speculation for rise in grain, after early reaction. Wheat up 3¾ cents, reaching $1 for December delivery, for first time since June 13.

July 16—General strike at San Francisco follows longshoremen's walkout. Aggressively opposed by citizens and by municipal and National Government.

July 18—Dispute on New York City bond issue between Controller and banks, settled by sale of $70,000,000 serial bonds and notes at average interest of 3.80 per cent. Steel output up from 27 to 28 per cent.

July 19—San Francisco general strike called off. Wheat above $1 for July delivery.

July 23—Sharp break in stocks; average falls 3¼ points.

July 25—Steel output declines to 27½ per cent.

July 26—Mussolini moves Italian army to Austrian border; Hitler repudiates Austrian Nazi plot. Falling stock markets throughout Europe; at New York heavy break, with average declines 5 points for stocks, 1½ for bonds. Day's business in stocks, 3,338,000 shares. Austrian Government 7s fall 6½ points, Italian 7s 3½, French 7½s 2⅜.

July 27—Stocks recover; average rises 2½ points. All European bonds recover sharply.

July 31—Striking longshoremen on Pacific Coast return to work.

AUGUST

Aug. 1—Steel output down from 27½ to 26 per cent. Extremely destructive drought continues in West.

Aug. 6—Sterling in terms of gold franc falls to 76.31, against 76.73 July 4 and year's high of 83.73 on Jan. 3.

Aug. 8—Bids for $150,000,000 Home Owners Loan Corporation bonds, offered by Treasury for 2 to 4 years at 1½@2 per cent interest disappointing. Treasury rejects all bids below 99, accepting $127,111,110 at average prices 99.931 to 100.677, Treasury itself buying in balance of $22,000,000. Steel output rises to 27½ per cent.

Aug. 9—President Roosevelt orders "nationalization" of silver, requiring delivery to United States Mint of all silver stocks within ninety days, to be purchased at 50.01 cents per ounce. Silver rises 1¼ cents to 49¼ cents, year's highest to date. United States bonds weak; total bond trading largest of any day since April 2, 1922.

Aug. 10—Sensationally bad grain crop estimate; September wheat at $1.11, corn 80¾ cents, both highest of summer season and year to date. Silver higher at 49¾ cents.

Aug. 11—Wheat falls to $1.04, corn to 76 cents, on news of rains in crop belt, and government's announcement acreage for 1935 would not be cut. Heavy decline in United States bonds; 3 per cents go below par. Dollar breaks to 99.04 in terms of revised gold exchanges; lowest of year, comparing with 100.03 Aug. 9 and 107.6, year's highest, on Feb. 5.

Aug. 13—Sharp recovery in United States bonds.

Aug. 14—Recovery in United States bonds continues; $1,000,000 gold arrived from Europe reshipped. Wheat down to $1.01⅞ on rain news.

Aug. 15—Steel output 22 per cent. Silver rises at London to 21¾d per ounce, highest since Dec. 27, 1929, comparing with 18 3-16 on May 1, 1934. Heavy rains break Western drought. Eugene R. Black resigns as governor of Federal Reserve Board.

Aug. 16—Rains in farm belt continue.

Aug. 20—Stocks motionless; day's five-hour business, 274,500 shares, smallest since July 3, 1922.

Aug. 22—American Liberty League organized at Washington to contest destructively radical actions and policies; expects 4,000,000 signatories. Organizers, Jouell Shouse, John W. Davis, Alfred E. Smith, Nathan L. Miller, James W. Wadsworth. Secretary Roper resents insinuation "profit motive in American life is or is to be abolished." Agricultural Administration announces objective of 5 per cent increase in planted wheat acreage. Dollar's exchange value 99.04 again; sterling at Paris down to 76.06. Steel production falls to 21 per cent.

Aug. 23—New York City Board of Estimate votes 15 to 1 for municipal tax of one-half of 1 per cent on gross business incomes. Bitter protests aroused.

Aug. 24—$907,000 gold shipped to Belgium. Signs of revision in many phases of NRA experiment. President intimates many NRA expedients will be permanent.

Aug. 25—$6,482,000 gold shipped to France, $438,000 to Belgium. Dollar exchange recovers slightly. Sterling at Paris at year's lowest price, 75⅝.

Aug. 27—Railways ask authority for increase of freight rates to add $170,000,000 revenue, in view of increased wages and general expenses. Plans announced for consolidation of Republic, Corrigan-McKinney and Truscon Steel Companies, total assets $323,000,000. New corporation would be third largest steel enterprise in United States, with one-tenth of country's steel capacity. More indications of internal disputes among NRA managers. Copious rains in grain belt, but too late to help much of corn crop.

Aug. 28—Secretary Morgenthau declares $6,000,000,000 increase in public debt in year and four months offset by increase of $1,600,000,000 in Treasury's cash balance and of $1,095,000,000 in assets of government agencies; also by $2,800,000,000 "gold devaluation profit," which may be used for debt reduction.

Aug. 29—Sterling at Paris falls to new low of 75.28 francs. Steel output 19 per cent, lowest since April, 1933.

Aug. 30—$2,800,000 gold shipped to France. Bar gold on open London market rises to high record of 140s 3d per ounce, against 139s 4½d previous day and 138s ½d at end of July. Previous high record 140s, Feb. 5. Sterling at Paris reaches low record of 75.12 francs; at New York, $4.99½, lowest since Feb. 7, comparing with $5.11¾ Aug. 11.

Aug. 31—Bar gold at London 140s 11½d per ounce. Sterling at Paris falls further to 74.43, depreciation of virtually 40 per cent from old gold parity, against dollar's official depreciation of 40.94 per cent. Sterling at New York $4.98¾.

SEPTEMBER

Sept. 1—Bar gold at London rises 5d, further to 141s 5d. Sterling at Paris firmer at 74.53. Lewis W. Douglas resigns as director of budget; action ascribed to administration program of lavish expenditure and change from policy of balanced budget.

Sept. 2—Textile strike North and South ordered. Labor union claims 1,000,000 men will go out. Talk of "government financing strike" through providing money to unemployed strikers elicits urgent protest; government agencies deprecate assertion.

Sept. 3—Labor Day. Scope of strike order extended. Bar gold at London rises to 141s 7d.

Sept. 4—Rise in bar gold checked; London price falls 8½d to 140s 10½d. Sterling rises at Paris from 74.67 to 75.08, at New York from $4.99 to $5.02⅛. Day's gold export $4,988,000, to Paris. Textile Union claims 300,000 men on strike, Associated Press estimates 199,200. Textile Institute calls strike a failure.

Sept. 5—Bar gold in London 4d lower at 140s 6½d. Sterling at Paris recedes to 74.90. $3,500,000 gold sent to Paris, $500,000 to Holland. President appoints special committee of three to investigate textile strike.

Sept. 6—Bar gold higher at 140s 8d. Steel output unchanged at 19 per cent.

Sept. 7—Bar gold 140s 9½d.

Sept. 8—Sterling at Paris 74.85, bar gold at London 140s 9d; $9,262,000 gold shipped New York to Paris.

Sept. 10—Treasury offers to convert called Liberty 4¼s into long-term twelve-year 3¼ per cents with one month's extra interest, or into four-year 2½s. Fourth Liberties rise sharply on news.

Sept. 11—Wheat rises 1¼c to $1.06⅞, corn ⅝c to 79⅞c, on government crop report lowering estimate on corn yield 122,500,000 bushels from Aug. 1 and 629,000,000 from July 1.

Sept. 12—Steel production up from 19% to 19½.

Sept. 14—Government bonds weak on eve of conversion; called Liberty Fourths 4¼s down to 100½, Treasury 3¼s of 1946 nearly at par. Reported import of 1,100,000 bushels wheat, 400,000 barley and 50,000 rye sends down wheat 2¾c, rye 4¼ and barley 1.

Sept. 16—Treasury announces that $530,000,000 of $1,250,000,000 Fourth Liberty 4½s, called for redemption Oct. 15, had to date been presented for exchange.

Sept. 18—New York City Municipal Assembly votes income tax 15% of Federal tax, of one-tenth of 1% on business receipts, and a form of lottery.

Sept. 19—Steel output 21%, second rise since 19% of Sept. 6.

Sept. 24—Books closed on conversion of 4th Liberty 4¼s to four-year 2½s; Treasury reports $596,000,000 exchanged. Period for conversion into twelve-year 3¼s extended. Total conversions to date under offer of Sept. 10, $844,000,000 out of $1,250,000,000. Markets perplexed at census report that 33⅞% of estimated cotton crop had been ginned to Sept. 16; previous maximum for period, 27.4%.

Sept. 25—Sharp recovery in stocks; day's average advance nearly 2 points, largest since June 8; transactions largest since Aug. 22.

Sept. 26—Steel output up from 21% to 23½; highest since Aug. 8, and comparing with 19 Sept. 6. In September, 1933, declined from 47% to 41.

Sept. 27—Chinese Minister at Washington delivered to State Department protest of Chinese Government against United States Government's driving up price of silver. Asserts rise is inflicting injury on China.

Sept. 30—President's broadcast on administration plans considered as "leaning to the right" on NRA program, but is silent on money issue.

OCTOBER

Oct. 1—Sterling at Paris, 74.53 francs, year's lowest, but touched also Sept. 27; at New York, $4.91½, lowest since Feb. 3. Gold bullion at London, up 4½d to 141s 6d per ounce. December wheat falls 3c, touching $1 first time since July 28, against year's highest, $1.13¾, Aug. 10. Corn and oats down 1⅜@1¾c.

Oct. 2—Bar gold at London passes previous high record of Sept. 3, rising 6½d to 142s 2½d. Sterling at Paris falls to 74.15 francs, new low record, marking depreciation of 40 per cent. Neville Chamberlain, Chancellor British Exchequer, merely remarked at Lord Mayor's dinner: "I'll say for the umpteenth time that the policy of this government is for the present to maintain the independence of sterling." Silver bullion at London, 22⅝d per ounce, highest since Dec. 11, 1929. Wheat declines to 98⅜c. Steel output rises from 23½ per cent to 24.

Oct. 4—Wheat breaks to 94c for December; lowest since July 10 and comparing with $1.13¾ Aug. 10. Heavy sales abroad by France reported. "Registered marks" reach low-record price, 45¾ per cent below official quotation of "free marks."

Oct. 5—Bar gold at London reaches new high figure of 142s 4d; sterling at Paris 74.18 francs.

Oct. 8—Bar gold 142s 6d. Sterling's gold value falls at Paris to record low price of 74 francs, against 74.53 week before, 75.8 month before, 83.48 in January and 124.21 parity. Silver bullion 22⅞d per ounce, highest since Nov. 5, 1929.

Oct. 9—King Alexander of Yugoslavia and French Foreign Minister Barthou killed at Marseilles by Croatian assassin. Sterling falls to new low point of 73.86 francs. European stock exchanges closed before news came from Marseilles; at N. Y. French Government 7½s declined 4½ points, Serbian 7s 2⅛, Italian 7s, 2¼. Domestic stocks and bonds quiet and little changed. Bar gold at London

142s 9d; silver bullion 23¼d, both high point for year.

Oct. 10—President, at White House press conference, declares prices should go higher, but discards idea of return to "1926 average." Says administration "has no immediate ideas of further devaluation" and has no definite knowledge of how extreme fluctuations of prices can be controlled. Sterling at Paris rises to 74.55 francs on war talk. Steel output 24½ per cent; fifth consecutive weekly rise.

Oct. 11—Wheat, cotton and stocks rise on "inflation talk," inferred from President's statement on prices. Silver bullion at new high record since 1929; 24½d per ounce at London, 53⅝ cents at New York. Bar gold up to 143s 3d, highest of season and rise of 13¾ per cent since Jan. 8; sterling at new low of 73.76 francs. Treasury announces $1,020,000,000 Fourth Liberty 4¼s, out of $1,250,000,000 designated in second call, presented in exchange for $424,000,000 twelve-year 3¼ per cents and $596,000,000 four-year 2½s.

Oct. 12—Treasury calls $1,870,000,000 more Fourth Liberty 4¼s for redemption April 15, 1935.

Oct. 13—Chinese Government announces 10 per cent export tax on silver, due to "undue rise" resulting from American Government's operations and to desire to "safeguard China's currency from a potentially dangerous strain on the country's monetary reserves." Silver bullion higher.

Oct. 15—Silver rises sharply on China's prohibitive export tax. New York price, 55¼ cents, highest since April 25, 1929; London price, 24⅞d, highest since May 27, 1929.

Oct. 16—China's statement published, notifying Washington that China, in view of demoralizing rise in silver, "is considering the gradual introduction of a gold-basis currency." Asks whether our government "is willing to exchange with Chinese Government gold for silver." New York price, silver, 55⅝ cents.

Oct. 17—Steel output 23½ per cent, against 24; first weekly decrease since August.

Oct. 22—Silver falls to 53 cents, New York.

Oct. 24—President Roosevelt addresses annual convention of American Bankers Association at Washington; speech conciliatory and friendly, but vague in reference to budget balancing, term of government emergency commissions, and currency policy. Stock market advances on lower court's decision that compulsory Railway Pension Act is unconstitutional. Bar gold at London declines to 139s 10d, against 143s 3d, Oct. 11. Steel output rises to 24½ per cent, highest since Aug. 8.

Oct. 25—Bankers' convention pledges "cooperation" with government on reviving credit, but declares paramount necessity of "a balanced national budget at the earliest possible date." Committee qualifies pledge by saying that "banks cannot make loans unless people want to borrow." Stock market makes no response, average prices slightly lower.

Oct. 30—U. S. Steel reports for third quarter net profit of $3,768,863, against $11,816,832 in same quarter of 1933. Net loss after depreciation and extraordinary expenses, $9,826,767, against $2,717,014. Dividend declared of ½ of 1 per cent on 7 per cent cumulative preferred stock, rate paid since January, 1933.

Oct. 31—Steel output rises to 26 per cent, highest since Aug. 8.

NOVEMBER

Nov. 1—Principal of $43,700,000 maturing external bonds of French cities redeemed with extra premium in dollars of 68 per cent to allow for American gold dollar's devaluation.

Nov. 2—$2,000,000 gold engaged at Paris for shipment to New York. Bank of France reports first weekly decrease in gold reserve since March 8.

Nov. 6—Administration party sweeps country in Congressional elections;

House of Representatives plurality increased nine, United States Senate plurality nine. First instance of increase of Congressional majority by a ruling party in the "mid-term elections." Republicans lose State ticket in Pennsylvania, gain California.

Nov. 7—Stock and bond markets unperturbed by election news. Stocks strong on transactions of 1,111,000 shares. Averages for stocks rise 1⅜ points; bonds firm. French franc touches 6.58⅜ cents, lowest in five months; gold exports by France to America reach $20,000,000, including previous week's shipment. Steel output higher at 26½ per cent, exceeding output of same week in 1933 for first time since June 20.

Nov. 8—Doumergue Ministry in France resigns; more gold taken at Paris for New York. Gold engagements in Europe for America reach $50,000,000 in a week.

Nov. 9—Pierre Etienne Flandin forms new French Ministry; development well received. Franc recovers sharply to 6.59¼ cents; gold engagements at Paris cease, $3,000,000 of previous orders canceled. New York stock market averages rise 1½ points; trading of 1,228,000 shares largest since Oct. 11.

Nov. 12—President by decree removes all restraint and control by Treasury or Federal Reserve on foreign exchange transactions. Action interpreted as further "swing to the right" and as left-handed intimation that no further dollar devaluation is contemplated.

Nov. 13—Belgian Ministry resigns. Belgian exchange falls and gold exports are resumed, but Liberal and Catholic blocs in Belgian Parliament take stand against currency devaluation.

Nov. 14—Steel output 27½%; highest since Aug. 8. More gold shipped from Europe.

Nov. 15—Largest day's trading in stocks since July 27; average prices highest since July 18.

Nov. 16—U. S. Chamber of Commerce pledges cooperation with President in recovery program.

Nov. 18—President, speaking in Tupelo, Miss., first city to contract for all its power with Tennessee Valley Authority, declares, "You are doing here what is going to be copied in every state of the Union before we get through."

Nov. 21—Steel output up to 28½%, highest since June 27. Compares with 19 at end of August, 61 June 13, and 27½ in corresponding week of 1933.

Nov. 28—Steel output 29% of capacity, against 27⅞ same date in 1933; sixth consecutive weekly rise.

DECEMBER

Dec. 3—Treasury offers $450,000,000 eight-year 3⅛ per cent bonds for cash; $450,000,000 two-year 1⅛ per cent notes, for cash or in exchange for 2¼ per cent certificates maturing Dec. 15, and 2⅛ per cent six-year Treasury notes in exchange for tenders of the $992,000,000 2¼ per cent maturing certificates. Cash offering immediately oversubscribed.

Dec. 4—Stock averages rise 1 point on results of bond offer. Spirited advance in outstanding government bonds, running to½@⅝ point. Fourteen extra dividends declared, mostly by industrial companies.

Dec. 5—Steel production rises to 29½. Quarrel between Yugoslavia and Hungary reaches climax; reported 27,000 Hungarians to be expelled from Yugoslavia. Sales tax becomes law for New York City. Stock trading at New York 1,636,613 shares.

Dec. 8—Italian Government orders all Italian banks to cede to National Exchange Institute all foreign credits, at ruling exchange rate; requires all Italian citizens resident in Italy to report foreign credits or Italian securities held outside Italy. National Exchange Institute to have monopoly in foreign exchange trading. Italian gold bonds fall 1 point at New York. Exchange on Rome down from 8.53 cents to 8.51¼ cents, against year's highest 8.73 cents, lowest 8.15¼ cents.

Dec. 10—Italian 7s falls 3⅞ points; exchange steady.

Dec. 11—England and France default again on semi-annual installment payment on debt to United States Government. Italian bonds recover 1⅛ points.

Dec. 12—Steel production up from 29½ to 33, largest since last week of June.

Dec. 13—Treasury announces $5,370,539,400 cash subscriptions for $450,000,000 new 3⅛s and $450,000,000 1⅛s. Reserve ratio at Bank of France 80.83 per cent, highest in its history. Bank of England's note circulation reaches maximum.

Dec. 14—Announcement of 885,862 votes for cotton farmers for continuance in 1935 of Bankhead Crop-Restriction Act, against 90,352 against it.

Dec. 18—Sharp rise in European exchange rates. New York City sells $42,900,000 serial bonds at net interest cost of 3.97 per cent.

Dec. 19—Steel production 35½ per cent.

Dec. 25—Country-wide reports of Christmas buying 25 to 50 per cent above 1933; in some cities largest since 1929.

Dec. 26—Steel output 36½ per cent. Motor-car output reported unexpectedly large; largest January in five years predicted. Employment in Detroit largest since 1929.

Dec. 27—Stock trading 1,631,000 shares; second largest of month.

Dec. 31—Year ends quietly on Stock Exchange; 1,000,000 shares dealt in. Stock averages close practically unchanged for day, up not quite 1 point for year. Bond average up ½ point for day, 9⅜ for year.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ECONOMICS

ACCOUNTANTS ASSN. OF N. Y., 51 Chambers Street, New York City.

AMERICAN ECONOMIC ASSOCIATION, North Western University, Evanston, Ill.

AMERICAN FAIR TRADE ASSOCIATION, 71 W. 23rd Street, New York City.

AMERICAN HOME ECONOMIC ASSN., 41 Eliot Memorial Road, Newton, Mass.

AMERICAN INSTITUTE OF ACCOUNTANTS, 135 Cedar Street, New York City.

AMERICAN INSTITUTE OF WEIGHTS AND MEASURES, 33 Rector Street, New York City.

AMERICAN RETAILERS', INC., 128 W. 31st Street, New York City.

AMERICAN STATISTICAL ASSN., INC., 236 Wooster Street, New York City.

CHAMBER OF COMMERCE OF THE UNITED STATES, 1615 H Street N. W., Washington, D. C.

CONSUMERS' LEAGUE OF NEW YORK, 150 Fifth Avenue, New York City.

COOPERATIVE LEAGUE OF U. S. A., 167 W. 12th Street, New York City.

FRENCH CHAMBER OF COMMERCE, 4 E. 52nd Street, New York City.

GENERAL SOCIETY OF MECHANICS & TRADESMEN OF NEW YORK CITY, 18 W. 44th Street, New York City.

HOME MARKET CLUB, 38 Chauncey Street, Boston, Mass.

INSTITUTE OF ECONOMICS, 722 Jackson Place, Washington, D. C.

INTERNATIONAL ACCOUNTANTS' SOCIETY, 3411 S. Michigan Ave., Chicago.

ITALIAN CHAMBER OF COMMERCE IN NEW YORK, 99 Hudson Street, New York City.

LEAGUE FOR INDUSTRIAL RIGHTS, 40 Wall Street, New York City.

MELLON INSTITUTE OF INDUSTRIAL RESEARCH, University of Pittsburgh, Pittsburgh, Pa.

MERCHANTS' AND CONSUMERS' LEAGUE, 362 E. 169th Street, New York City.

NATIONAL ASSOCIATION OF COST ACCOUNTANTS, 1790 Broadway, New York City.

NATIONAL ASSN. OF CREDIT MEN, 1 Park Ave., New York City.

NATIONAL ASSN. OF REAL ESTATE BOARDS, 59 E. Van Buren St., Chicago, Ill.

NATIONAL BUREAU OF ECONOMIC RESEARCH, INC., 51 Madison Avenue, New York City.

NATIONAL CONSUMERS' LEAGUE, 156 Fifth Ave., New York City.

NATIONAL ECONOMIC LEAGUE, 6 Beacon Street, Boston, Mass.

NATIONAL FOREIGN TRADE COUNCIL, 1 Hanover Square, New York City.

NATIONAL RESEARCH COUNCIL, 29 W. 39th Street, New York City.

NATIONAL WHOLESALE GROCERS' ASSN. OF THE U. S., 99 Hudson St., New York City.

NEW YORK STOCK EXCHANGE, 11 Wall Street, New York City.

ORDER OF UNITED COMMERCIAL TRAVELERS OF AMERICA, 632 N. Park St., Columbus, O.

PETROLEUM IMPORT & EXPORT CORPORATION, INC., 70 Pine Street, New York City.

BANKING AND CURRENCY

AMERICAN BANKERS ASSN., 22 E. 40th Street, New York City.

AMERICAN INSTITUTE OF BANKING, 22 E. 40th Street, New York City.

INVESTMENT BANKERS ASSN. OF AMERICA, 531 First National Bank Bldg., 33 S. Clark St., Chicago, Ill.

INVESTORS' PROTECTION COMMITTEE, 280 Broadway, New York City.

NATIONAL ASSN. OF MUTUAL SAVINGS BANKS, 347 Madison Avenue, New York City.

NATIONAL ASSN. OF SUPERINTENDENTS OF STATE BANKS, Nashville, Tenn.

NEW YORK CLEARING HOUSE ASSN., 77 Cedar St., New York City.

UNITED STATES BUILDING AND LOAN LEAGUE, 22 East 12th Street, Cincinnati, O.

INSURANCE

ACTUARIAL SOCIETY OF AMERICA, 393 Seventh Avenue, New York City.

AMERICAN INSTITUTE OF ACTUARIES, 720 N. Michigan Ave., Chicago, Ill.

AMERICAN INSTITUTE OF MARINE UNDERWRITERS, 99 John Street, New York City.

AMERICAN LIFE CONVENTION, Omaha, Neb.

AMERICAN MARINE INSURANCE SYNDICATES, 99 John Street, New York City.

ASSOCIATION OF CASUALITY & SURETY EXECUTIVES, 1 Park Ave., New York City.

ASSOCIATION OF LIFE INSURANCE PRESIDENTS, 165 Broadway, New York City.

BOARD OF UNDERWRITERS OF NEW YORK, 99 John Street, New York City.

CASUALTY ACTUARIAL SOCIETY, 90 John Street, New York City.

NATIONAL ASSN. OF LIFE UNDERWRITERS, 11 W. 42nd Street, New York City.

NATIONAL ASSN. OF MUTUAL CASUALTY COS., 60 E. 42nd Street, New York City.

NATIONAL ASSN. OF TRAVELERS' AID SOCIETIES, 23 W. 43nd Street, New York City.

NATIONAL BOARD OF FIRE UNDERWRITERS, 85 John Street, New York City.

NATIONAL BUBEAU OF CASUALTY & SURETY UNDERWRITERS, 1 Park Ave., New York City.

NATIONAL COUNCIL OF COMPENSATION INSURANCE, 151 Fifth Ave., New York City.

NATIONAL FIRE PROTECTION ASSOCIATION, 60 Batterymarch, Boston, Mass.

SURETY ASSOCIATION OF AMERICA, 60 John Street, New York City.

DIVISION XI

AGRICULTURE AND ALLIED INDUSTRIES

REVIEW OF AGRICULTURAL CONDITIONS

By Henry A. Wallace

Secretary of Agriculture

GENERAL

Prices.—Agricultural conditions in the United States have improved greatly since the passage of the Agricultural Adjustment Act in May, 1933. Farm commodity prices in September, 1934, averaged 103 per cent of the pre-war level as compared with a low point of 55 per cent reached in March, 1933. Gains in farm commodity prices were partly offset by increases in the prices of commodities bought by farmers. From March, 1933, to September, 1934, the index of prices paid by farmers advanced 26 per cent. However, the exchange value per unit of farm products in September, 1934, was 82 per cent of the pre-war level, as compared with only 55 per cent in March, 1933.

Income.—In 1932 the average farmer, after paying interest, taxes, and the expenses of production, had nothing left as a return for his capital and management. In 1933, for the first time since 1929, he had left a small net balance, after writing down his capital structure. Income from marketings in 1933, with benefit and rental payments added, exceeded that of 1932 by 16 per cent, and prospects are for an additional gain of 19 per cent in 1934. The total cash income of farmers from the sale of farm products for the calendar year 1934, including rental and benefit payments and income from the sale of cattle, sheep and goats to the Agricultural Adjustment Administration, is estimated at approximately $6,000,000,000. Estimates of cash income from farm marketings on a calendar year basis from 1924 to 1934, including rental and benefit payments in 1933 and 1934, are as follows:

1924	$ 9,785,000,000
1925	10,324,000,000
1926	9,993,000,000
1927	10,016,000,000
1928	10,289,000,000
1929	10,479,000,000
1930	8,451,000,000
1931	5,899,000,000
1932	4,328,000,000
1933	5,051,000,000
1934	6,000,000,000

THE 1934 DROUGHT

Effect on Crops and Supplies.—The worst drought ever recorded in this country occurred in 1934. It extended over 60 per cent of the country, and severely affected 27 states. It cut down the yields of food grains and of cotton, reduced tremendously the production of feed, forage and pasture, and necessitated a heavy reduction in livestock numbers. Food supplies for the nation remained sufficient. There were on hand large stocks of bread grains and several other food products; the production of canning crops was above normal; fruits and vegetables were fairly abundant outside the drought area, and the supply of meat, dairy and poultry products was adequate for the rest of the season, until new crops became available. Local supplies of certain food products, however, were short in many areas. Reflecting the shortage of feed grains and roughage, there will be a sharp reduction in market supplies of meat and other livestock products in 1935, even if the growing season should be normal. In the areas hardest hit, farmers suffered a decline in their income. For the country as a whole, however, the drought affected farm income but little. Higher prices tended to offset the reduction in marketings, and farm income, including benefit payments, for the entire country showed a substantial increase over the previous year.

Periodical Phenomenon.—There are no indications that the drought constituted a permanent change to desert-like conditions in the midwestern states. Weather records suggest that extreme drought in particular regions may be expected to occur at intervals of thirty to forty years. Rain and snowfall tend to run in alternating periods of above and below normal. Each period covers a long time, and the periods are not uniform in length. The trends show up clearly, however, when we study the records graphically and draw curves to smooth out yearly variations. About midway between the long-interval rainfall depressions, appear successive years of comparatively abundant rains. There is nothing to indicate that history will not repeat itself in this respect. In another temporary period, not now predictable, much heavier rains undoubtedly will prevail.

Farm Surplus Situation. — Outstanding among the results of the drought was a great change in the farm surplus situation. Normal wheat consumption in the United States to the end of the 1934-35 year, assuming neither imports nor exports, will reduce the wheat carry-over to about 156,000,000 bushels, as compared with an average of about 339,000,000 bushels in the preceding five years. The cotton carry-over will be close to normal by the end of the 1934 season, though the drought was less responsible for reducing the supply of cotton than the acreage adjustment. Production of corn, oats, barley, and grain sorghums totaled only about 63,000,000 tons as compared with an average of 101,000,000 tons for the period 1928-32. This reduction in the feed supply entailed corresponding adjustments in livestock numbers. The number of hogs fed for the marketing year began Oct. 1, 1934, may be less than 70 per cent of the number fed for the preceding marketing year. By next spring cattle numbers will be sharply reduced, in the most rapid liquidation ever known. Not including poultry, the total number of the grain consuming animal units in the country is 15 per cent smaller than it was in 1933, and 13 per cent smaller than the average for the five-year period 1929-33.

Influence on Prices. — Prices of many of the crops severely affected by the drought rose during the summer. Grain prices and also hay prices advanced sharply. Cotton prices advanced when drought damage to that crop became apparent. Cattle prices did not respond immediately, because heavy marketing from the drought areas occurred. Other classes of livestock, except hogs, either failed to advance or declined in prices through forced marketing. Hog prices improved significantly. Livestock products showed a quicker tendency to rise in price than livestock. Butter and egg prices strengthened notably. Ultimate effects of the drought on prices will be greatly different from the first effects. The prices of cattle, sheep and poultry will undoubtedly advance after the forced marketing is over. The slower response of livestock prices to the drought will probably cause these prices to remain relatively high longer than other farm commodity prices. Cattle prices will tend to remain high longer than hog prices, because the recovery in cattle numbers will be very slow.

Government Relief Measures.—The Government relieved farmers who had been made destitute. It bought starving cattle, shipped food, feed and seed into the droughtstricken areas, assisted farmers in maintaining their foundation herds and in digging or deepening wells, and provided employment. In various activities the Agricultural Adjustment Administration, the Federal Emergency Relief Administration, the Federal Farm Credit Administration, and other Federal agencies cooperated. Benefit payments for crop adjustments, and funds available for the control of livestock diseases, were important sources of relief. An important emergency step modified the planting restrictions on farms under AAA contracts, so as to encourage the production of forage.

The cattle-buying program resulted up to the middle of October in the purchase of about 7,000,000 cattle in 20 states. For these cattle the Government paid $92,000,000. Formerly in times of severe drought, the markets quickly became glutted with thin cattle. Farmers had to sacrifice many of their best animals. This year they did not have to force their stock upon the commercial markets at a heavy loss. The Government paid a fair price. Farmers were able to dispose of their older and less profitable stock, as well as calves and young cattle for which they had insufficient feed.

COTTON ADJUSTMENT PROGRAM

Acreage Reduction.—After a series of meetings with farmers and others interested in the price and production of cotton, the Agricultural Adjustment Administration formulated a program for 1934, which called for an acreage reduction of approximately 40 per cent from the 1928-32 base. Launched in January the campaign signed up approximately 1,000,000 producers, who agreed to keep roughly 15,000,000 acres out of production. The reductions constituted about 38 per cent of the base acreage of the cooperating producers.

Benefit Payments. — Payments to the producers, as compensation for this reduction, were of two types. There was a rental payment amounting to 3½ cents per pound on the average per acre yield of the land taken out of production, and a benefit payment equal to 1 cent a pound on the domestically consumed percentage of the base production. In the base period domestic consumption of cotton averaged 40 per cent of the production. Accordingly the benefit payment applied to that proportion of the base production.

Yield and Income.—As a result of the voluntary adjustment, and of action under the compulsory features of the Bankhead Act, the acreage planted to cotton in 1934 totalled approximately 28,000,000. Low yields on this reduced acreage produced a crop estimated in October at 9,443,000 bales. The world supply of American cotton for the 1934-35 cotton marketing year will be about 20,000,000 bales, as contrasted with 26,000,000 bales when the adjustment programs started. The changed supply position, along with the change in the gold value of the dollar, caused a sharp advance in cotton prices. In September, 1934, the farm prices averaged 13.1 cents a pound. The previous year's (1933) cotton program simply prevented an increase in the surplus. Farmers, however, saved the extra expense of carrying the full planted acreage to harvest. They received an average farm price of 9.7 cents for their crop, and rental and benefit payments besides. From the lint the growers received about $633,000,000 as compared with $424,000,000 realized in 1932. In addition they received $167,000,000 in rental and benefit payments. Consequently the income of cotton farmers from lint in 1933 was about 89 per cent more than in 1932. About half the increase may be properly attributed to the activities of the Adjustment Administration. By the end of the 1934 season the world carryover of American cotton will be close to normal, and higher prices for American cotton should prevail.

Results.—Up to the present, the American cotton policy stands justified by its results. Foreign countries produced more cotton last year than they did the year before, but a large part of the increase would have occurred even if the United States had produced more than 17,000,000 bales last year and glutted the world markets with a supply of 29,000,000 bales, as most of the 1933-34 foreign crop had already been planted before our program was even decided upon. They expanded for the same reason domestic producers increased their acreage nearly 12 per cent in 1933. Foreign countries have produced large crops in the past. We must expect them to do so again. A gradual upward trend in foreign cotton growing results naturally from the development of agriculture in many countries. Foreign cotton production has not reached its peak. But neither has cotton consumption. There is room for a vast increase in consumption in most countries. The prosperity of the American growers has been enormously enhanced by the adjustment programs conducted during the last two years, because these programs have helped to correct an unbalanced supply position. It does not follow that still more prosperity could be gained by creating an artificial shortage. We wish to retain our foreign market; and this means that we must continue to supply it at moderate prices. But we do not wish to retain it at ruinously low prices. Therefore we must not let an increase in foreign production stampede us back into overplanting. Our cotton policy has succeeded thus far because it truly represented an adjustment to the demand. That is the formula for its success in the future. It will be more difficult to apply, now that the problem is to steer between extremes. But the principle remains unchanged.

WHEAT

Marketing and Income.—Activities of the Agricultural Adjustment Administration helped to increase the income of wheat growers. From wheat marketings in the 1933-34 season, the growers received (exclusive of benefit payments) about $267,000,000, as compared with $195,000,000 in 1932, an increase of $72,000,000. They obtained this amount from the sale of only 368,000,000 bushels, whereas marketings the previous season totaled 524,000,000 bushels. Price gains more than sufficed to offset the reduction in the 1933 marketings. Benefit payments added $98,000,000, so that the total income from wheat for the 1933 season amounted to $365,000,000, an increase of $170,000,000 over that of the previous year. In the 1934-35 season farmers will market some old wheat carried over from the previous seasons and also the new crop at prices which may give them an income a little larger than they received for wheat during 1933-34. There will also be benefit payments.

Surplus Elimination.—Elimination of the wheat surplus in the United States by 1935 is a possibility. Acreage adjustments and the weather have done in two years the larger part of a job that semed likely to take five or six. In consequence, wheat prices have risen. The average farm price in the United States in September, 1934, was 92.2 cents a bushel, as compared with 32.9 cents in January, 1933. But rising prices do not benefit farmers with little or nothing to sell. There is more calamity than benefit in the adjustment of supplies through drought. Yet acreage tends to rise if prices do, and world acreage-adjustments will be more difficult than it was before the surplus disappeared. Continued restrictions of the American wheat acreage will be justified if competing countries likewise recognize the need for acreage adjustments, but not otherwise.

CORN AND HOGS

In the case of corn and hogs the full benefit to farmers from the activities of the Agricultural Adjustment Administration has not yet been realized. Prior to the midsummer of 1934, prices of hogs and the income therefrom did not improve significantly. Nevertheless, distinct advantages from the adjustment programs may be recognized. By purchasing pigs and sows in the fall of 1933, and subsequently by making large purchases to provide meat for relief, the Government stabilized the market through the winter season. By placing a large quantity of corn under seal for loans, it helped to conserve the supply of corn, and at the same time to slow up livestock production. Hence the corn-hog program will realize its greatest benefits within the next twelve months.

TOBACCO

The tobacco program increased the growers' receipts from the 1933 crop by about $50,000,000. In addition, growers received $28,000,000 in rental and benefit payments. The total income of farmers from tobacco during the marketing year 1933-34 was approximately double that of 1932-33 and nearly equal to the average for the last ten years. Tobacco farmers received an increased proportion of the consumer's tobacco dollar. More than 90 per cent of the tobacco growers of the United States and Puerto Rico operated under production adjustment contracts in 1934. The 1934 crop was approximately 25 per cent smaller than that of 1933 and was as much below the average annual world consumption of American tobacco as last year's crop was above that level. For the first time in several years, the returns appear to be remunerative to tobacco growers.

THE DAIRY SITUATION

In the spring of 1934 the Administration invited dairy farmers and others concerned to offer proposals for improving the dairy situation. Finally, it offered an adjustment program providing benefit payments for reduction of sales. Dairy farmers, however, were not sufficiently united in favor of the program. In fact they appeared to be about equally divided for and against it, or against parts of it. It is a fixed rule of the Agricultural Adjustment Administration that no program shall be put into effect unless a substantial majority of the producers affected indicate their intention to cooperate. Accordingly, the plan was held in abeyance. Since then, milk production has been so greatly reduced by the drought that no general dairy adjustment program was needed during 1934.

SUGAR

By means of legislation passed in May, 1934, the Administration developed a comprehensive sugar program which provided the mechanism for the solution of difficult problems arising in an important agricultural industry. The legislation embodied recommendations contained in a Presidential message to Congress dated Feb. 8, 1934. Action to apply the various provisions of the Act went forward immediately after its enactment on May 9, 1934. A processing tax was levied on sugar of ½c per pound, raw value. Simultaneously, the tariff on sugar was reduced by an amount equal to the processing tax. By this means the Administration obtains its fund for carrying out the programs for the benefit of producers without placing an additional burden on the consumer. To prevent the accumulation of surplus stocks of syrup of cane juice and edible molasses and depression of the farmer's price for cane, the Administration levied a processing tax on these commodities of .125c per pound of total sugar content, as compared with the tax, 5c per pound on sugar.

RICE

In dealing with rice, a basic commodity under the Agricultural Adjustment Act, the Administration moved to raise the income of the growers through marketing agreements, rather than through a combination of processing taxes and benefit payments. It adopted this method because the rice industry is comparatively small and geographically compact, and because the rice-growers have had considerable experience in cooperation. The administration negotiated agreements with the California rice industry, and with the southern rice industry, whereby the mills agreed to minimum prices and conversion charges and the growers undertook to control their production through acreage allotments.

MARKETING AGREEMENTS AND LICENSES

Benefits.—Another approach to the problem of increasing the income of farmers is through the marketing agreements and licenses authorized by the Agricultural Adjustment Act. Experience with such agreements and licenses during the past year indicates that under proper circumstances they may benefit producers substantially. Marketing agreements have proved to be particularly useful in the control of surpluses and in the regulation of shipments. Surpluses can seldom be effectively controlled without the participation of 100 per cent of the industry. A number of attempts have been made to deal with a surplus problem through the cooperative organization of growers and handlers, but it was seldom possible to obtain the support of the entire industry.

Need for Cooperation.—Officially approved marketing agreements have placed many programs on such a basis that all the groups concerned, cooperative and proprietary alike, must participate. Embodied in the terms of a blanket license, the essential features of the marketing agreement bind all the handlers or processors engaged in the industry. By this means the former non-cooperators are kept from reaping more than their share of the benefits. Marketing agreements and licenses have thus made it possible for the growers of citrus fruits, walnuts, raisins and other commodities to avoid the disastrous effects of unregulated supplies.

The Case of Milk.—In the case of milk licenses, the classification of milk according to its use, the equalization of sales opportunities and of surplus burdens among producers, and other protective measures are all interwoven with prices, and with the problem of increasing the income of milk producers. In most cases the minimum price provisions of the licenses have been of direct value to producers by affording reasonable price stability and by protecting producers against the past practice whereby farmers bore the brunt of dealers' price wars.

PURPOSES OF THE AAA

Because the first task of the Agricultural Adjustment Administration was to attack the surpluses, the idea got abroad that its whole job is to cut down production. That is not the case. Not to create scarcity, but to promote a balanced abundance, is the purpose. By reducing the production of all products, farm and factory, the country could make all prices go up. At the same time, however, it would make prices run away from incomes. In the end each person would have less purchasing power, and consumption would decline all around. That we cannot all be better off by all producing less goes without saying, and the Agricultural Adjustment Administration does not propose reduction as the sole means of improving farm conditions. On the contrary it attaches equal importance to expansion at the right time. We must aim eventually at more plentiful production of goods and services to provide for a more abundant living. In the long run, nevertheless, production control is as necessary on the up-swing as on the down-swing. Without it expansion in some lines inevitably goes too far and causes a disastrous reaction.

FARM CREDIT ADMINISTRATION

Great benefit to agriculture has also resulted from action taken under the Emergency Farm Mortgage Act of May 12, 1933 and the Farm Credit Act of June 16, 1933. Formed by executive order of March 27, 1933, the Farm Credit Administration merged a number of existing Federal credit agencies and created a central administration. This organization administers the provisions of the Emergency Farm Mortgage Act, and also of the Farm Credit Act, which provides new facilities for production and marketing credit and for cooperative credit. The Farm Credit Act, supplementing the Federal Farm Loan Act of 1916 and subsequent legislation, provides a complete credit service for agriculture which is designed for permanency.

TYPES OF AGRICULTURAL RELIEF

Thus Federal action under the new Administration has furnished three principal types of agricultural relief. By devaluing the dollar it has caused the prices of certain farm commodities to rise more than the prices of the things that farmers buy, and increased their ability to meet debts and taxes. Secondly, through production adjustments financed by processing taxes and through marketing agreements with production control features, it has brought the supply of farm commodities more nearly into a profitable relationship with the demand. Thirdly, through credit relief, it has lightened and refinanced farm debt. It would not be correct to ascribe the whole improvement in farm conditions during the last two years to Federal activities. Much must be credited to the country's natural recuperative power. Depressions tend to run their course and to generate corrective forces spontaneously. However, this is a slow and painful process. In important respects, moreover, the present depression differs essentially from preceding depressions. It is world-wide, and marked by an unprecedented breakdown in international trade in which there has been as yet no significant revival. American agriculture was developed largely for trade with the outside world. The farm recovery of the last two years owes little or nothing to recovery in the world market. It is the result mainly of domestic changes, in which the activities of the Federal Government have been the most important element.

AGRICULTURAL LEGISLATION

By M. S. Eisenhower

Director of Information, Department of Agriculture

GENERAL

Much legislation affecting agriculture became law at the second session (Jan. 23, 1934, to June 19, 1934) of the Seventy-third Congress. Among the more important enactments were: The Bankhead Act to regulate the production of cotton; the Kerr-Smith Act applying a similar principle to tobacco; various amendments extending the list of basic commodities under the Agricultural Adjustment Act; a measure authorizing the President to negotiate reciprocal trade agreements with foreign countries; the Taylor Act authorizing the creation of grazing districts out of the public domain and modifying the homestead regulations; the Frazier-Lemke-McKeown Amendment to the bankruptcy act, and emergency provisions for drought relief.

BANKHEAD AND KERR ACTS

Cotton Control.—Under the Bankhead Cotton Control Act, Congress limited the amount of cotton marketable tax exempt from the 1934 crop, and provided for the collection of a tax from cotton sold in excess of the tax exempt amount. It authorized the President to continue the plan next year if imperative to meet a continued economic emergency.

Tobacco. — The Kerr-Smith Tobacco Control Act, imposed a sales tax on all tobacco harvested in 1934-35 except Maryland tobacco, Virginia sun-cured tobacco, and cigar-leaf tobacco. It authorized issuance of tax exempt warrants to tobacco growers who participate in the Government's acreage control plan. Furthermore the Act authorized the Secretary to establish quotas for the importation of any cigar-leaf types of tobacco.

AGRICULTURAL ADJUSTMENT ACT

Amendments to the Agricultural Adjustment Act added cattle, peanuts, barley, rye, flax, grain sorghums, sugar beets, and sugarcane to the list of basic agricultural commodities. They authorized an appropriation of $200,000,000 for dairy and beef cattle adjustments, and an appropriation of $50,000,000 to buy dairy and beef products for relief distribution and to reimburse farmers for cattle destroyed in campaigns against tuberculosis and other diseases. The sugar amendments authorized a domestic production of 1,550,000 tons of sugar in the beet-sugar area and 260,000 tons of sugar in the cane-sugar area, and empowered the Secretary of Agriculture to make allotments for sugar imports. They provided also for processing taxes to finance the sugar control and authorized the Secretary to purchase surplus sugar not in excess of 300,000 tons, produced in the beet-sugar area, and to distribute it for unemployment relief, or to dispose of it in other ways consistent with the policy of the Act. Still other amendments to the Agricultural Adjustment Act modified provisions relating to the processing tax.

Marketing Agreements. — Certain proposed amendments to the Agricultural Adjustment Act did not come to a vote. These had to do with the enforcement of marketing agreements. The major producers' organizations, including the National Grange, the American Farm Bureau Federation, the Farmers National Grain Corporation and the National Cooperative Council endorsed them, as likewise did the Agricultural Adjustment Administration Their purpose, as explained by officials of the Agricultural Adjustment Administration, was to restate in explicit terms what the Administration believed to be the original intent of Congress. Opponents felt, however, that the amendments proposed a definite extension of the powers of the Agricultural Adjustment Administration. It proved impossible to smooth out controversial points before Congress adjourned.

Licensing Powers.—In the original Agricultural Adjustment Act Congress empowered the Secretary of Agriculture (1) to issue licenses permitting processors, associations of producers and others to handle farm products in interstate or foreign commerce; (2) to suspend or revoke licenses for violation of the terms and conditions thereof; (3) to fine anyone handling farm products in such a manner without a license; and (4) to require licensees to furnish reports and keep suitable accounts. In attempting to enforce these provisions the administration met with considerable resistance. Taking advantage of technicalities and ambiguities in the law, minorities strove to prevent the enforcement of licenses.

It is usually essential to couple marketing agreements with licenses enforceable against obstructing minorities. Whatever blocks enforcement of the licenses blocks the purpose of the agreements. Accordingly the amendments in question sought to remove uncertainties in the law—to specify more clearly the intent of Congress to give the Secretary of Agriculture power to enforce these marketing arrangements against the recalcitrant few. In several cases the ower Federal courts decided the licensing powers exercised by the Secretary of Agriculture were properly exercised. Litigation nevertheless continued and seemed likely to increase pending a more definite statement of the Secretary's licensing powers.

Marketing agreements covering a great variety of crops were in effect when the amendments were proposed. These agreements covered fluid milk and cream, tobacco, peanuts, rice, California deciduous tree fruits, Northwest deciduous tree fruits, California, Texas and Florida citrus fruits, Tokay grapes, cling peaches, canned and fresh asparagus, canned olives, walnuts, raisins, turpentine and rosin. Licenses regulated the distribution of milk in many large cities. Not including increased returns to tobacco and milk producers, the benefit to farmers from marketing agreements and licenses in the 1933-34 season ran close to $30,000,000.

One of the principal objections to the amendments was that they would have permitted the licensing of individual farmers. Therefore the administration proposed that a majority of producers affected by any license should have an absolute veto power over any of its provisions. One amendment would have allowed the Secretary, in making contracts with farmers for the reduction of basic crops, to stipulate that the production of non-basic crops should not be increased. This provision, it was declared, would compel farmers to reduce their total production. The Administration stated, however, that no farmer would have been obliged to sign any such agreement; that there was nothing in the amendments to change the voluntary character of the adjustment programs. The Senate Committee on Agriculture and Forestry favorably reported the amendments, but pressure of other business prevented their consideration by Congress.

RECIPROCAL TRADE AGREEMENTS

To facilitate the expansion of foreign markets Congress amended the Tariff Act of 1930. It authorized the President, whenever he finds that any excess duties or other import restrictions of the United States, or of any foreign country, restrict our foreign trade unduly, to enter into trade agreements with foreign countries. These agreements are not subject to Senate ratification. In order to carry out the agreements he is authorized to proclaim tariff rates on any article higher or lower than the present rates by not more than 50 per cent. The new law provides that before agreements are concluded, reasonable public notice shall be given in order that interested persons may present their views. Agreements may be terminated at the end of three years, and thereafter on six months' notice.

Progress is being made in the organization of the tariff bargaining work. Interdepartmental committees have been established, on which the Department of Agriculture is represented. The State Department has announced an intention to negotiate trade agreements with many countries in Latin America and Western Europe. Only one agreement has been concluded so far under the new tariff bargaining law. This was signed with Cuba on Aug. 24, 1934. In one fundamental respect it differs from the arrangements that may be concluded with other countries. In the Cuban agreement, the United States and Cuba grant to each other exclusive preferences on import duties which are not extended to other foreign countries. In general, under the terms of the tariff bargaining law, the policy will be pursued of extending generally to all countries the concessions made on import duties by the United States. This is not true in the case of Cuba, to which the United States gives preferences ranging from 20 to 50 per cent and Cuba extends to us preferences from 20 to 60 per cent from the general duties applicable to other countries.

TAYLOR GRAZING ACT

By the Taylor Grazing Act, Congress authorized the creation out of the public domain of grazing districts to comprise not more than 80,000,000 acres. The Secretary of the Interior is to administer these districts, under a system permitting *bona fide* settlers, residents and other stock owners to graze livestock. In addition the Act authorized the Secretary to permit homestead entry in tracts not exceeding 320 acres within such grazing districts when it appears that the land is more valuable for cultivated crops than for native grasses. It further authorized the Secretary to accept privately-owned land within the boundaries of such grazing districts. He may also, when the public interest will be benefited, exchange public lands within a certain radius for privately-owned lands within the grazing districts. The Secretary is authorized to issue grazing permits, to provide for the orderly use, improvement and development of the public range, and to cooperate with other agencies in the conservation of wild life dependent on the range.

FRAZIER-LEMKE ACT

New bankruptcy legislation for the benefit of agriculture went into effect under the Frazier-Lemke-McKeown Act. This measure permits farmers who have not succeeded in getting their indebtedness adjusted to petition for bankruptcy and for an appraisal of their property. Appraisers appointed by the court will appraise the property "at its then fair and reasonable value, not necessarily the market value at the time of such appraisal." Then, with the consent of the lienholders, the property may be sold, in whole or in part, to the debtor on certain prescribed terms. These call for the payment of one per cent interest upon the appraised price for the first year, and thereafter for the payment of a certain percentage of the appraised price, with interest at one per cent on the unpaid balance, until the end of a six-year period when the remaining unpaid balance is due. Should the creditors reject the proposed arrangement the court must stay all proceedings for five years during which time the debtor may retain all or part of the property on payment of a reasonable rental. At the end of the five years, or earlier, the debtor may pay into court the appraised price of the property subject to re-appraisal at the request of any lienholder. In the absence of such request, payment of the appraisal price will fully discharge the debtor and give him title to the property.

DROUGHT RELIEF

The Emergency Appropriation Act made available $525,000,000 for relief in drought-stricken agricultural areas, to be allocated by the President to supplement previous emergency appropriations and for several additional purposes. Notably it authorized the purchase, sale, gift or disposal of seed, feed, transportation and other necessaries. The appropriation included certain moneys for Federal-aid highways, for forest roads and trails, and for public land highways. In addition the Emergency Appropriation Act amended Sections 4 and 5 of the Agricultural Adjustment Act so as to strengthen the powers of the Secretary of Agriculture in dealing with cotton held as security for cotton loans. Another measure authorized a $40,000,000 appropriation to the Farm Credit Administration for crop production loans.

COTTON AND GRAIN CROPS

By W. F. Callander

Chairman, Crop Reporting Board

COTTON ACREAGE

The 1934 cotton crop was about one-third less than an average crop, largely because of the acreage reduction brought about by the control program of the Agricultural Adjustment Administration. Economic conditions favored an increase in acreage above the acreage in 1933, since the price received for the 1933 crop was nearly double the price received for the 1932 crop. The production control program of the AAA, however, called for a reduction in acreage on the farms of contracting growers of 35 to 45 per cent from the base acreage on these farms for the period, 1928-1932, inclusive.

The acreage of cotton in cultivation on July 1 as given in the Dec. 1 preliminary acreage report was 28,412,000 acres and represented a reduction of 30.5 per cent from the acreage in cultivation on July 1, 1933. The 1934 acreage in cultivation was 31.4 per cent less than the average acreage of the five-year period, 1928-1932, of 41,437,000 acres. Under the terms of the cotton contract approximately 14,900,000 acres of land formerly producing cotton was rented to the Secretary of Agriculture at rates varying from $3.37 to $23.14 per acre, depending upon the average yield secured on the individual holdings during the base period. In the states the acreage rented to the Secretary represented 38 to 40 per cent of the acreage during the base year. The approximate acreages rented to the Secretary in the several states were as follows: Texas, 5,300,000; Mississippi, 1,500,000; Alabama, Oklahoma, and Arkansas, 1,300,000 each; Georgia, 1,200,000, South Carolina and Louisiana, 700,000 each; North Carolina, 500,000; Tennessee, 400,000, and Missouri, 150,000.

Over 6,000,000 acres of cotton were planted on farms of growers who did not enter into contract with the Government because they were ineligible for contract and were unable to or unwilling to make the required reduction or were growing cotton for the first time in 1934.

Abandonment of acreage from such causes as disease, insect damage, flood, extreme drought and similar causes was comparatively light in 1934 in all states except Texas, Oklahoma and New Mexico. In these latter states considerable acreage was abandoned on account of the drought. For the Cotton Belt, about 900,000 acres, 3.2 per cent of the acreage in cultivation on July 1, was not harvested, in comparison with the average abandonment of 2.6 per cent. The acreage of cotton actually harvested in 1934 was 27,515,000 acres which was 8.2 per cent less than the 29,978,000 acres harvested in 1933 and 32.2 per cent less than the average acreage harvested in the five years, 1928-1932.

COTTON YIELDS

In 1934, the yield per acre of cotton in the Eastern States of the Cotton Belt was considerably above average. In Louisiana and Arkansas they were about average and in Oklahoma and Texas they were much below average. In the irrigated states of the Far West, yields per acre harvested were also above average. Conditions were particularly favorable in the Atlantic Seaboard states where the crop was early and fruited well. Dry, hot weather of late June and July greatly reduced weevil infestation. The growing season continued favorable and the harvesting season was more favorable than usual. Picking and ginning progressed rapidly, with small field losses. In the Western States, including the Mississippi Delta, the drought which began late in the spring continued unabated throughout the growing season. The crop was stunted and unable to carry more than a minimum of bolls. The average yield on the acreage harvested in 1934 of 169.2 pounds for the United States was practically the same as the ten-year average of 169.9 pounds.

The yield of 110 pounds per acre in Texas was the lowest in many years and compares with the yield of 185 pounds in 1933 and an average yield of 139 pounds. In Oklahoma, the yield was reduced even more severely by drought and averaged for the State in 1934 only 57 pounds, compared with 208 pounds in 1933, and an average of 149 pounds. In Louisiana the yield of 196 pounds was 20 pounds per acre greater than in 1933, but only four pounds above average. In Arkansas the yield of 186 pounds was 7 pounds per acre less than in 1933 and 2 pounds less than average. The extremely favorable cotton season in the eastern portions of the belt is illustrated by the yield of 320 pounds per acre in North Carolina, 20 pounds greater than in 1933 and 51 pounds above the average yield of 269 pounds. Similarly, in South Carolina the 1934 average yield was 259 pounds, in comparison with an average of 208 pounds; in Georgia, 221 pounds in comparison with an average of 176 pounds; in Alabama, 213 pounds in comparison with an average of 172 pounds. The yield per acre in Mississippi of 211 pounds, however, was only 20 pounds above the average of 191 pounds. Exceptionally fine yields were secured in Missouri with 366 pounds per acre, compared to 340 pounds in 1933 and an average of 256 pounds. In New Mexico, because of a practical failure of all dry land cotton acreage, a yield of 474 pounds, practically a bale to the acre, was secured from the irrigated acreage in comparison with an average yield of 318 pounds. In California more than a bale per acre was produced, or 548 pounds, compared with an average of 386 pounds.

COTTON PRODUCTION

The preliminary estimate of the 1934 cotton crop is 9,731,000 bales of 500 gross weight. This is about 3,316,000 bales or 25.4 per cent less than the 1933 crop of 13,047,000 bales and 4,935,000 or 33.6 per cent below average production of the five-year period, 1928-32. Production in Texas was 2,395,000 bales, only 52.3 per cent of the average crop of 4,580,000 bales. The Oklahoma crop was only 325,000 bales, equivalent to 29.3 per cent of the five-year average production of 1,109,000 bales. Production in Mississippi was 1,145,000 bales, in comparison with an average of 1,559,000 bales. In Georgia, 995,000 bales were produced against an average of 1,242,000 bales. In Alabama, 965,000 bales were produced, in comparison with an average of 1,255,000 bales. The Arkansas crop of 875,000 bales compares with an average crop of 1,351,000 bales. The Louisiana crop of 488,000 bales was 65.5 per cent of average. The South Carolina crop of 695,000 bales was 81.2 per cent of average and the North Carolina crop of 650,000 pounds was 86.4 per cent of average. In Missouri, 245,000 bales were produced; California 255,000 and Tennessee 412,000.

The production of cottonseed in 1934 was 4,324,000 tons, compared with 5,804,000 tons in 1933 and an average production of 6,520,000 tons for the years 1928-32. This production is computed from lint production, calculating 65 pounds of seed for each 35 pounds of lint. The total value of lint and seed from the 1934 crop, valued at Dec. 1 prices (paid to producers at local trading centers) was $756,420,000, 9.5 per cent greater than the $690,526,000 value similarly calculated for the 1933 crop and nearly double the $425,475,000 received for the crop of 1932. These values do not include the $115,000,000 rental benefit and parity payments paid to farmers for cotton and rented to the Secretary of Agriculture in 1934, nor the $113,000,000 paid to farmers for rental of land from which cotton was removed in 1933. Cotton lint alone had a value in 1934 of $602,314,000; in 1933, $611,743,000, and in 1932, $371,840,000.

The Dec. 1, 1934, average price of lint per pound was 12.4 cents, compared with 9.4 cents on Dec. 1, 1933, and 5.7 cents in 1932. The Dec. 1 price of cottonseed of $35.64 per ton was nearly three times the $13.57 per ton price of Dec. 1, 1933 and nearly four times the $9.27 price on Dec. 1, 1932. When valued at average prices for the marketing season, total values are slightly different. Income received from the cotton crop of 1933 cannot be definitely and finally determined until all of the loans to growers have been liquidated. These loans were made at a basis of 10 cents per pound for the period December, 1933, until July, 1934, and some of them were converted on the basis of a 12-cent loan after that date. Cotton produced in 1934 could also serve as collateral for the 12-cent loan, and the final value of the crop cannot be determined until these loans have been liquidated. While all the cotton lint is normally marketed, a considerable part of the cottonseed is taken back from the gin and utilized as seed, feed and fertilizer. Thus, the cash income from the 1933 cottonseed crop was only $50,920,000.

GRAIN CROPS

The 1934 season was one of the most unfavorable in history for all of the grain crops, with the exception of rice and buckwheat. The production of wheat was the smallest since 1890. The corn and oats crops were the smallest since 1881 and the barley crop far below any other season since 1900. The rye crop was even smaller than the short crop of 1933. The buckwheat crop was only 5 per cent below average and the rice crop was within 12 per cent of the average production. The combined production of the grain crops was about 2,623,000,000 bushels, which is 33 per cent less than the 1933 crop and 48 per cent below the average for the five years. The production of grain crops used primarily for human food—wheat, rye, buckwheat and rice combined—was 559,867,000 bushels in 1934, 6 per cent less than in 1933 and 43 per cent below the average production of 980,456,000 bushels.*

WHEAT

The wheat crop of 496,469,000 bushels in 1934, was less than in any other year since 1890, and almost 20 per cent below production in any other year since 1904 except 1933. The 1934 crop was about 100,000,000 bushels less than the amount required in recent years for domestic consumption as flour and for seeding the new crop. Taking into consideration the amount of wheat which will be fed to poultry and other livestock on farms where produced and the fact that some wheat will be exported either as wheat or as flour, it is quite apparent that the large stocks of wheat which were accumulated for several years up to 1933 will be further reduced by the end of the current marketing season. The 1934 crop was 6 per cent less than the 1933 crop of 528,975,000 bushels and 44 per cent less than the average production of 886,359,000 bushels. The acreage of wheat harvested in 1934 of 42,235,000 acres is 5,675,000 acres less than the greatly reduced acreage in 1933, and only 70 per cent of average. The very low acreage in 1934, resulted from the combination of unfavorable weather and heavy abandonment in both winter and spring wheat sections of the country, although the acreage planted had already been reduced as a result of the wheat control program of the AAA. Since the highest percentage of the growers' acreage was under contract in the areas where abandonment was most severe, the acreage harvested would not have been greatly increased in the absence of the reduction program.

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* Average acreage and production, when mentioned, relate to the five years, 1927-31 inclusive; average yield per acre to the ten years, 1922-31, inclusive.

The winter wheat crop of 405,034,000 bushels was 15 per cent larger than the very short crop of 350,792,000 bushels produced in 1933 and 36 per cent less than the five-year average production of 632,061,000 bushels. Unfavorable conditions prevailed in the Great Plains region at seeding time, resulting in above-average loss of acreage during the winter, although abandonment was not as severe as it was in 1933. After some improvement in the late winter and early spring, drought conditions reappeared in April and May causing further abandonment and reduced yields. Of the 41,850,000 acres seeded in the fall and winter of 1933, 21.3 per cent, or 8,905,000 acres, was subsequently abandoned, in comparison with the acreage abandoned from 1932 seedings of 32.2 per cent or 14,184,000 acres. The ten-year average abandonment of winter sown wheat is 12.2 per cent. The estimated yield per acre of winter wheat in 1934 on the acreage harvested was 12.3 bushels, the same as in 1933. The ten-year average yield is 15.2 bushels.

SPRING WHEAT

The 1934 crop of all spring wheat of 91,435,000 bushels is only about half of the relatively short crop of 1933 of 178,183,000 and only about one-third as large as the 1932 production of 267,497,000 bushels. The five-year average production is 254,298,000 bushels. The acreage harvested in 1934, was 9,290,000, compared with 19,425,000 acres in 1933 and 21,898,000 acres in 1932. This crop suffered from adverse weather conditions from seeding time to harvest. In the principal spring wheat producing region of the Dakotas and Montana, moisture conditions were unfavorable at seeding time. A considerable acreage failed to germinate and perished from heat and drought in the early stages of growth. In South Dakota the damage was especially severe and total production was insufficient for seeding the average acreage. Of the 18,521,000 acres seeded to spring wheat in 1934, only about half was harvested. In 1933, 24,300,000 acres were seeded.

The production of durum (or macaroni) wheat was only 7,086,000 bushels, less than half of the 1933 production of 16,737,000 bushels and only 12 per cent of the five-year production of 61,460,000 bushels. The acreage of durum wheat harvested was 990,000 acres out of the 2,046,000 acres seeded. In 1933, 2,310,000 acres were harvested out of a total of 3,140,000 acres seeded. The yield per harvested acre of 7.2 bushels in 1934 was the same as the 1933 yield and 40 per cent less than the average yield of 12.1 bushels per acre.

The production of spring wheat other than durum was 84,349,000 bushels, compared with 161,446,000 bushels in 1933 and 226,897,000 bushels in 1932. The harvested acreage of 8,300,000 acres in 1933, was less than half the harvested acreage of 17,115,000 acres in 1933. Almost half of the 16,475,000 acres seeded in 1934 was abandoned. The yield of other spring wheat per harvested acre in 1934 was 10.2 bushels, compared with 9.4 bushels in 1934 and an average yield of 12.7 bushels per acre.

Because of relatively higher prices prevailing on Dec. 1, the value of the

1934 wheat crop was larger than in 1933 by $70,000,000. At the average price of 87.1 cents per bushel on Dec. 1, the 1934 crop was valued at $432,441,000; in 1933 at the farm price of 67.9 cents per bushel, the crop was valued at $359,048,000. The much larger crop of 1932, because of the very low price of 32 cents per bushel, was valued at only $238,828,000.

RYE

The 1934 production of rye at 16,040,000 bushels was even smaller than the crop of 21,150,000 bushels in 1933 and less than half as large as the 1932 crop of 40,639,000 bushels. The center of the rye production is in the Dakotas where the crop was sharply reduced by the early spring drought. The downward trend in acreage continued, and the acreage harvested in 1934, was only 1,937,000 acres, compared with 2,349,000 acres harvested in 1933 and 3,334,000 acres harvested in 1932. The yield per acre in 1934 was only 8.3 bushels per acre compared with 9 bushels in 1933 and the five-year average yield on harvested acreage of 12.4 bushels. It should be noted, however, that the acreage seeded for all purposes in the fall and winter of 1933 of 5,027,000 acres was larger than the acreage seeded in the preceding year when 4,470,000 acres were seeded and practically as large as the acreage seeded in the fall of 1931 when 5,085,000 acres were seeded.

Based on the Dec. 1 price of 75.9 cents per bushel, the 1934 crop was valued at $12,182,000 compared with 55.4 cents per bushel and $11,718,000 for the 1933 crop and 22.3 cents per bushel and $9,073,000 for the 1932 crop.

BUCKWHEAT

The production of buckwheat of 9,062,000 bushels in 1934 was 16 per cent larger than the 1933 crop of 7,844,000 bushels and only about 5 per cent below the average production of 9,496,000 bushels. The larger crop in 1934 was produced on an acreage of 480,000, compared with 462,000 acres in 1933 and 454,000 acres in 1932. The 1934 yield of 18.9 bushels per acre is the highest yield since 1915 and compares with 17 bushels in 1933 and 14.8 bushels per acre in 1932. Favorable weather conditions in October, especially in the important producing states of New York and Pennsylvania, resulted in larger yields than were expected earlier in the season. At the Dec. 1 farm price of 57.7 cents, the 1934 crop was valued at $5,227,000 and the 1933 crop at a farm price of 53.1 cents per bushel was valued at $4,162,000, while the 1932 crop at a farm price of 40 cents was valued at $2,691,000.

RICE

The 1934 rice crop of 38,296,000 bushels (45 pounds rough) was slightly larger than the 1933 crop of 37,058,000 bushels. The 1932 production was 41,250,000 bushels and the average production was 43,651,000 bushels. The yield per acre in 1934 of 49 bushels was considerably higher than the 46.8 bushels in 1933 and considerably above the average of 42.5 bushels. The acreage in the Southern States has been reduced for three successive years and is now at a lower level than in any time in the last 15 years. In California the acreage is at a moderately low level, having been steadily reduced since 1931. The acreage for the United States in 1934 was 781,000 acres, compared with 792,000 acres in 1933 and 873,000 acres in 1932.

The Dec. 1 farm price of 77.5 cents was practically the same as a year earlier and practically double the price of 39.1 cents on Dec. 1, 1932. At these prices the 1934 crop was valued at $29,662,000, the 1933 crop at $28,881,000, and the 1932 crop at $16,116,000.

FEED CROPS

The combined production of the four farm feed crops,—corn, oats, barley and grain sorghums in 1934, when expressed in tons to allow for different weights per bushel, totalled only 49,871,000 tons, approximately half of the average production. This short feed supply followed the 1933 crop which was also much below average. In 1933 the combined production was 83,756,000 tons; in 1932 it was 111,563,000 tons. The greater part of the production of these crops will be fed on the farms where produced and only a small quantity consumed for food by human beings or used in industry. Farmers' incomes from these crops, therefore, will come largely from the livestock to which these are fed. Extreme shortage this year will make it necessary for farmers to make considerable reductions in their herds and flocks.

CORN

The 1934 corn crop of 1,380,718,000 bushels was 41 per cent smaller than the short crop of 2,351,658,000 bushels in 1933 and 45 per cent less than the average production of 2,516,307,000 bushels. These estimates are expressed in the equivalent of ear corn on the entire acreage grown for all purposes. The acreage of corn harvested for all purposes in 1933 was only 87,486,000 acres, compared with 103,260,000 acres in 1933 and 108,668,000 acres in 1932. An additional acreage of 7,833,000 was planted and entirely abandoned in 1934, and 2,722,000 acres were abandoned in 1933. Ordinarily the entire abandonment of corn is slight. The acreage planted in 1934 was reduced below that of 1933 and 1932 as a result of the corn-hog program of the AAA, which permitted farmers to rent from 20 to 30 per cent of their base acreage (1932-33 acreage) in return for a rental benefit payment. The yield per acre of corn used for any purpose at 15.8 bushels per acre in 1934 was only 61 per cent of the 10-year average of 25.7 bushels. The 1933 yield was 22.8 bushels per acre.

The unusually small corn crop of 1934 was due to the severe drought and sustained high summer temperatures, particularly in the western portion of the corn belt. The crop was a near failure in Kansas, Colorado, Nebraska, South Dakota, Missouri and portions of the adjoining states. The West North Central States produced in 1934 only 30 per cent of their average production; the East North Central States produced 66 per cent; the Western States, 34 per cent; the South Central States, 80 per cent, but the North Atlantic States produced 113 per cent and the South Atlantic States 108 per cent. Of the total corn acreage, 58,752,000 acres were harvested for grain in 1934, compared with 88,999,000 acres in 1933 and the average of 85,690,000 acres. The production of ear corn was estimated at 1,107,887,000 bushels, compared with 2,038,706,000 bushels produced in 1933 and the five-year average of 2,127,119,000 bushels. The production of corn for silage, including the production on an unusually large acreage which produced little or no grain, was 33,603,000 tons in 1934, compared with 31,115,000 tons in 1933 and the three-year (1929-31) average production of 31,079,000 tons. The acreage for silage in 1934 was 6,745,000 acres, about half again as much as in the preceding years. In 1933, 4,541,000 acres were cut for silage and the five-year average was 4,367,000 acres. A comparatively large acreage of 21,989,000 acres were cut green or dry forage or used for hogging down and grazing in 1934, compared with 9,720,000 acres in 1933 and a five-year average of 10,649,000 acres.

In evaluating the total production of corn at the Dec. 1 price of 78.6 cents per bushel, the value of the short corn crop exceeded the billion dollar mark for the first time in four years, with a value of $1,085,565,000. The 1933 crop at the Dec. 1 price of 39.3 cents per bushel was valued at $924,930,000 and the very large crop in 1932 at the Dec. 1 price of 19.2 cents per bushel had a value of $558,902,000.

OATS

The production of oats of 528,815,000 bushels was 28 per cent less than the short crop of 1933 of 731,500,000 bushels, 58 per cent less than the 1932 production of 1,246,548,000 bushels and 55 per cent less than the five-year average production. The 1934 crop was the smallest since 1881. Until last year's short crop, oats production had exceeded 1,000,000,000 bushels each year since 1911. The acreage of oats harvested in 1934 was 30,395,000 acres, in comparison with 36,701,000 acres harvested in 1933 and 41,420,000 acres harvested in 1932. Some of the oats originally intended for grain were so poor that they were pastured or cut for hay and, in addition, a considerable acreage was entirely abandoned. The acreage seeded for harvest in 1934, was 37,976,000 acres, compared with 39,965,000 acres in 1933. The yield per acre harvested in 1934 was 17.4 bushels per acre; in 1933, the yield was 19.9; in 1932, 30.1 and the ten-year average yield was 30.1 bushels. This year's yield of 17.4 bushels per acre is the lowest on record, and, in no other year since 1866 when the records began, has the yield dropped below 21 bushels, except in 1933 when the yield was 19.9 bushels.

In spite of the very low production, the total value of the crop based on the Dec. 1 price was greater than in 1933. At the price of 51.6 cents per bushel the value of the crop was $272,754,000; at 30.3 cents per bushel the 1933 crop was valued at $221,691,000, and at 13.4 cents in 1932, the total value of the crop was $167,299,000.

BARLEY

The 1934 production of 118,929,000 bushels was 24 per cent less than the 1933 crop of 155,825,000 bushels and 61 per cent less than the 302,042,000 bushels harvested in 1932. The production in 1934 was the smallest since 1900 when 96,041,000 bushels were harvested from 4,545,000 acres and the five-year, 1927-31 average was 270,444,000 bushels. The sharp decrease in production resulted from heavy abandonment due to drought and the second smallest yield per acre in the 68-year record of the Department. The 7,144,000 acres harvested in 1934 was 29 per cent less than the 10,009,000 acres harvested in 1933 and 46 per cent less than the 13,346,000 acres harvested in 1932. The average acreage harvested was 11,963,000 acres. The average yield of 16.6 bushels per acre in 1934, was only slightly larger than the record low yield of 15.6 bushels in 1933. The yield in 1932 was 22.6 bushels and the ten-year average yield was 22.7 bushels. In 1934, 11,378,000 acres were seeded, in comparison with 13,350,000 acres in 1933.

Based upon the Dec. 1 price of 77.2 cents per bushel, the 1934 crop was valued at $91,836,000. The 1933 crop at a Dec. 1 price of 40.7 cents per bushel, was valued at $63,497,000, and the 1932 crop at 20.1 cents was valued at $60,689,000.

THE DAIRY INDUSTRY

BY L. S. RICHARDSON

BUREAU OF DAIRY INDUSTRY, DEPARTMENT OF AGRICULTURE

GENERAL CONDITIONS

Conditions in the dairy industry, with respect to milk production and prices of dairy products, had become critical in the summer and fall of 1933. Storage stocks had accumulated to such high levels that the Government started buying butter to remove the surplus from regular trade channels. Storage stocks of creamery butter on Jan. 1, 1934 were 63,000,000 pounds larger than the 5-year average for that date, in spite of the 40,000,000 pounds which had been removed by the Government for distribution to the needy and unemployed. With the decline in consumer purchasing power, prices of dairy products had fallen disastrously.

By mid-January farm prices of feed grains were twice as high as a year earlier, and butterfat was 3 cents a pound less. In fact the farm price of butterfat was the lowest in relation to feed grains for any January since 1910. Although this butterfat-grain relation tended to slow up production per cow early in the year, there was the potential danger of increased production again with the coming of the pasture season, particularly in view of the fact that milk cow numbers were the highest on record.

ADJUSTMENT PROGRAM

Because consumer buying power was still below the level necessary to utilize the supply of dairy products at a satisfactory price to the industry, the Agricultural Adjustment Administration deemed it important to launch a program to maintain production at or below the existing level, in order to prevent the flush production of which the industry was capable. Such a program was offered to the industry in 15 regional meetings in April. The program called for benefit payments to dairy farmers for reducing their sales output 10 to 20 per cent below their average output for 1932 and 1933. Payment was to be made on the basis of 40 cents a pound of butterfat below the base sales. Farmers were to select their own method of curtailing their sales output by changes in feeding practice, reductions in cow numbers, or otherwise. The Bureau of Dairy Industry cooperated by suggesting a number of practical possibilities, based on its research work, for reducing production economically and guarding against the production of unprofitable surpluses. Sufficient organized opposition developed to the program, however, so that it was not put into effect.

DROUGHT RELIEF

Then came the drought, the worst in the history of the country. Eventually its effects were felt over 75 per cent of the area of the country, and severely in 27 states. In many areas the feed shortage was acute. The Government, through various agencies, removed starving cattle from drought-stricken areas, condemned those unfit for food, processed the better ones for relief meat, and shipped others to pasture for further fitting. Up to Nov. 1 more than 7,000,000 head of cattle and calves had been purchased, of which about 20 per cent were estimated to be dairy stock. While most of the dairy cattle were culls and their removal will not reduce milk production materially, feed will be saved for the better cattle remaining in the herds.

The Government's program to improve dairy conditions during the year included the purchase of cattle in drought areas; the removal of cattle afflicted with tuberculosis and Bang's disease; the purchase of butter and cheese for distribution through relief channels; the issuance of fluid-milk licenses setting minimum prices to producers; the development of marketing agreements for evaporated milk and dry-skim milk, and educational work to bring about more economical methods of feeding, better breeding, and improvement in the quality of dairy products to stimulate consumption.

REMOVAL OF DISEASED CATTLE

Dairy leaders have long urged the culling of diseased cattle, low producers, and other unprofitable cattle from the herd, as a means of making milk production more economical. Through funds provided by the Jones-Connally Cattle Act, considerable impetus has been given to the removal of tuberculous cattle and those reacting to the Bang's disease test. Joint efforts of the Agricultural Adjustment Administration, state officials, and the U. S. Bureau of Animal Industry, from Aug. 1 to Oct. 1, resulted in the testing of 32,000 head of cattle for Bang's disease and the removal of 12,000 reactors. From July 1 to Oct. 1, 1,828,781 head were tested for tuberculosis and 83,400 were removed.

BUTTER AND CHEESE PURCHASES

Purchases of surplus butter by Government agencies were begun in 1933 and continued into 1934. By April more than 51,000,000 pounds of butter had been diverted from regular trade channels for relief use. Since that time awards have been made for an additional 16,000,000 pounds, of which 4,948,000 pounds has been delivered. Bids awarded for cheese during the year amounted to 13,932,000 pounds, of which 6,401,000 pounds has been delivered. From time to time additional amounts of dairy products will be purchased in limited quantities as required by relief agencies. Such purchases, however, are regarded merely as a temporary measure to eliminate abnormal surpluses from regular trade channels, and cannot be expected to improve the dairy situation permanently.

MARKETING AGREEMENTS AND LICENSES

The first step taken under the provision of the new Farm Act to help the dairy industry was the attempt to improve conditions on certain major fluid-milk markets by means of milk marketing agreements and licenses. After considerable experiment the procedure was changed. The principal reasons for the changes were: (1) relative inflexibility of the agreements to meet changing conditions on fluid-milk markets, (2) troubles arising from resale prices, (3) milk-shed restrictions, and (4) the problem of equitably caring for the producer-distributor. The present policy is one of license without a marketing agreement at the start. Agreements may be developed later as the licenses for individual markets become perfected to meet local conditions. Up to Nov. 1, the Agricultural Adjustment Administration had placed a total of 47 fluid-milk licenses in effect, the 50 or more cities where these licenses are effective being located in 18 states. Thus far the only marketing agreements for manufactured dairy products are those undertaken in the fall of 1933 for evaporated milk and dry-skim milk.

RESEARCH, SERVICE, AND EDUCATION

Various agencies of the Federal Department of Agriculture continue to cooperate with the Bureau of Dairy Industry in a program of research, service, and education, directed toward lowering the cost of milk production, improving the quality of dairy products on the farm and in the factory to stimulate consumption, and developing and introducing new uses for dairy products to increase the farmer's market.

Dairy feeding research in the past few years has emphasized the possibilities of economy in milk production through the growing and feeding of better roughage and pasture. Research has provided new information on how to produce and utilize pasture to better advantage, when to harvest and how to store grass hay and other roughage to preserve its nutritional value. Feeding experiments have shown that roughage is more palatable and more nutritious when cut in the early stages of maturity than when allowed to ripen before cutting, and the immature cuttings yield more protein per acre. Investigations have also shown the importance of using roughage with a high carotene content, or vitamin A value, because of its beneficial effect on the general health and reproductive functions of dairy cows, and also on the nutritive value of their milk. Educational effort in connection with the Department of Agriculture program to turn cultivated lands into pasture and forage crops has given added impetus to the feeding of more and better home-grown roughage to dairy cows.

Lowering milk production costs is also dependent on breeding more efficient cows. Breeding research in the Bureau's herds has shown the value of using proved sires in successive generations to raise the production level or efficiency of the herd. Proved sires are being located in increasing numbers through the records of their daughters in dairy herd-improvement associations.

Quality in dairy products is an important factor in maintaining consumption. The creamery butter industry this year launched an enthusiastic campaign to improve the quality of butter. Since quality in butter is highly dependent on the quality of cream from which it is made, regulatory and educational agencies of the Department of Agriculture are cooperating in the campaign to stimulate the production of clean cream on the farm. The Bureau of Dairy Industry, in its creamery-butter campaign in the South, has demonstrated the advisability of buying cream on the basis of the quality of butter it will make, paying for the cream according to quality. The creamery-butter industry is now considering proposals for a uniform compulsory cream grading law.

A number of commercial companies

have begun packaging and merchandizing natural Cheddar cheese in cans this year, according to a method developed by the Bureau of Dairy Industry. Bureau specialists believed that more Cheddar cheese would be consumed if it were offered to the consumer in small attractive packages, in sizes suitable for the average family. Such a package of Cheddar cheese should compete better with other attractive canned goods on grocers' shelves, than bulk cheese. Tests were also made this year to determine methods and materials for wrapping Swiss cheese when it is cut for the retail trade. The Bureau also found a suitable package this year for merchandizing skim-milk powder in small consumer-size units. Making skim-milk solids available to the average household should increase the sales of this valuable product for use in home cookery.

DISEASES AND PESTS OF ANIMALS

By John R. Mohler

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QUARANTINE AND HEALTH SUPERVISION

During 1934, the United States remained free from various foreign livestock maladies that caused heavy losses to stock owners in many other parts of the world. The fortunate position of the United States, in this respect, is due largely to the effective quarantine regulations and veterinary supervision over incoming livestock, meat, hides, wool, feed, and related products. Communicable diseases already present in this country are being reduced through efforts of individual stock owners and their effective cooperation with state and Federal officials.

In general, the health of domestic animals in the United States is probably better than at any previous time in spite of the recent severe drought. This condition is due partly to the rigid culling of herds and flocks which was necessary last summer in the drought-affected areas because of the acute shortage of feed. The selective nature of this work, together with augmented disease-eradication measures already under way, has resulted in an improvement in the physical soundness of most classes of livestock, notwithstanding some underfeeding.

TUBERCULOSIS AND BANG'S DISEASE

As in former years, the Nation-wide campaign to eradicate bovine tuberculosis continued to show progress. This year a new low mark of 1.1 per cent in the average degree of infection among cattle was reached as indicated by a survey that extended to all states. Before systematic eradication work began, the infection exceeded 4 per cent. During the year, testing of cattle proceeded at the rate of more than a million a month. Most of these tests were made under what is known as the area plan which provides that all herds in a county or other area be tested and the reactors removed and slaughtered. When the extent of tuberculosis has been reduced to less than 0.5 per cent of the cattle population, the area is officially designated as ''modified accredited.''

On Oct. 1, 1934, a total of 1,867 counties—nearly two thirds of all in the United States—had received such official recognition indicating that tuberculosis had been practically eradicated. There are 15 entire states so recognized. Kentucky, West Virginia, Washington, and Illinois were added to the list since October last year. States previously listed were North Carolina, Maine, Michigan, Indiana, Wisconsin, Ohio, Idaho, North Dakota, Nevada, New Hampshire, and Utah.

During the year the eradication of animal diseases received additional stimulus in connection with the reduction of livestock numbers as a part of agricultural adjustment.

Special funds were allotted for eradication of tuberculosis, already mentioned, and likewise the testing of cattle for Bang's disease, also known as infectious abortion. Testing for Bang's disease was being actively conducted in 45 states by the end of October.

CATTLE TICKS IN THE SOUTH

Cattle owners in portions of the South still infested with cattle ticks have continued to cooperate with Federal and state officials in eradicating this pest which transmits splenetic or tick fever. When the eradication work was first begun in 1906 there were 15 states wholly or in part under Federal quarantine because of cattle ticks. The quarantine has now been removed from all parts of three States—Florida, Louisiana, and Texas. Eradication work which has been in progress during 1934 will result in several thousand square miles of territory being released from quarantine near the close of the calendar year. Additional funds for this work were received from the Civil Works Administration, making possible the construction and repair of more than 4,000 dipping vats in the States mentioned.

The usual method of eradication in any area consists in dipping all cattle, horses, and mules in an arsenical solution of the proper strength to kill the ticks and not injure the livestock. These dippings are repeated at regular intervals through the summer and fall months so as to destroy any ticks that may be picked up from pastures since the last dipping. In this way the ticks are prevented from continuing their life cycle and are either killed by dipping or die on the pastures. In areas from which ticks have been eradicated stock owners find that their herds are more profitable since the tick handicap has been removed. In many such areas improved breeding stock is being introduced. Such improvement was impractical so long as the tick menace remained, since losses from tick fever were unusually heavy in imported cattle.

RESEARCH AND PROCEDURES

Scabies.—In the range area of the West, sheep owners, through cooperation with state livestock sanitary officials, apparently have succeeded in eradicating the parasitic disease known as scabies. So far as is known there is no sheep scabies in any state lying west of Louisiana, Arkansas, Missouri, Iowa, and Minnesota. The last known case of this disease in the range area of New Mexico was eradicated during the summer of 1934. There is, however, some scabies in farm flocks in midwestern states.

Hog Cholera.—Continued progress was made also in control of other diseases of livestock such as hog cholera, shipping fever of cattle, and glanders and dourine of horses. Outbreaks of hog cholera reported to Bureau veterinarians during the 12 months ended November 1, 1934, were well below last year's figure. Serious outbreaks of this disease usually result from failure on the part of swine growers to observe sanitary precautions which help to keep the infection from their premises. The disease is readily preventable by the use of anti-hog-cholera serum, a biological product that is being manufactured commercially in establishments licensed by the Bureau.

Bang's Disease. — Investigational studies have been made of such diseases as swine erysipelas, equine encepholomyelitis, anthrax, mastitis, and Bang's disease. The last-named malady has been the subject of a cooperative investigation with eight state universities and experiment stations.

Parasites. — Besides dealing with control and eradication of the communicable diseases mentioned, investigators of the Bureau of Animal Industry are continually studying means of reducing losses from parasites. Methods that have proved most successful in dealing with parasite problems consist largely in preventing young animals from becoming infested or breaking the life cycle of the parasite and thus preventing infection. Proper methods of feeding and management are usually the basis for success in these respects, though veterinary treatment is sometimes desirable also.

Plant Poisoning. — Losses from stock-poisoning plants may be prevented in most cases by special methods of handling livestock where such plants are numerous. Familiarity with the plants that are most troublesome and with the procedure recommended for each kind is necessary for best results.

Results.—Success in the reduction of losses from diseases may be credited largely to scientific research and also to the desire of livestock owners to take advantage of more practical methods of coping with disease problems. They are thus able to produce higher quality products and at the same time reduce costs of production.

DISEASES OF PLANTS

By Howard A. Edson

Bureau of Plant Industry, Department of Agriculture

GENERAL WEATHER INFLUENCES

Plant diseases in 1934 were much influenced by the wide fluctuations from normal temperature and precipitation which characterized the year. The erratic temperatures of February in particular and the unusual summer heat and dryness affected the health of vegetation. The early spring and open winter which prevailed generally through the West brought on the most serious outbreak of grass and cereal rusts ever experienced in western Washington. Grain rusts also appeared early in unusual amounts on winter wheat and oats in Texas and Oklahoma but dry weather checked their development and limited the injury done. The drought practically eliminated rusts as economic factors in the central and northern grain producing states of the West. In the areas most seriously affected by the drought, where it did not actually kill the crops, it produced unusual physiological disorders and added to the injury caused by root parasites. Bunt or stinking smut was more prevalent than usual in Pennsylvania, Georgia, Texas, Utah, and Montana.

EFFECTS OF SEVERE WINTER

Perennials.—Winter temperatures below normal in the northeastern United States, following a season of restricted rainfall, caused serious injury and winter killing of ornamental shrubs, fruit trees and other perennials. A survey of 879 commercial apple orchards in Maine containing about 430,000 trees of bearing age and 80,000 young trees resulted in the condemnation of over 166,000 of the bearing trees and over 4,000 of the younger trees as not worth maintaining. It was reported that from one-fourth to one-half of these orchards would not be replanted.

Root-knot. — The severe winter was not without compensating benefits. The root-knot nematode, *Heterodera marioni,* has been extending its range northward in recent years during which average winter temperatures higher than normal have prevailed. Apparently its numbers were sharply reduced in the muck lands of New York State last winter, where the snow cover was light. Some badly infested fields appear to have been entirely freed from the pest. In other fields and in other northern localities with heavier snow cover the low temperatures seem to have been without effect upon the organisms; doubtless because the soil temperatures remained above the critical point.

Bacterial Wilt of Corn.—The unprecedented losses of corn from Stewart's disease, *Aplanobacter stewarti,* which occurred in 1932 and 1933 were followed in 1934 by a sudden drop to approximately normal incidence and range. A critical analysis of the fragmentary information available about the previous outbreaks and disappearances of the disease led N. E. Stevens to the conclusion that an interesting and perhaps significant correlation exists between the winter temperatures and the abundance of the disease during the following summer. He showed that when the sum of the mean temperatures for December, January, and February computed in degrees Fahrenheit has fallen below 90 in a given region in the northeastern United States the disease has usually been absent from that region the following summer. It has been present in destructive amounts when the sum of the mean temperatures for the three winter months rose above 100 degrees, while intermediate conditions have prevailed in seasons following winter temperatures averaging between the limits stated.

Charlotte Elliott and F. W. Poos published results showing that the fleabeetle, *Chaetocnema pulicaria Melsh.*, transmits the disease from infected to healthy corn plants, and that overwintered adults of the insect harbor *Aplanobacter stewarti* in infective condition. The fleabeetles commonly feed on young corn plants on emerging from hibernation. It remains to be determined whether the survival and distribution of *Chaetocnema pulicaria* is controlled by the winter temperatures with which Stevens correlates the incidence of Stewart's disease.

NEW NARCISSUS DISEASE

A threatening foliage disease of Narcissus new to the United States appeared in the spring of 1934 in restricted areas in the Puyallup Valley in Washington. The fungus causing the disease, *Botrytis polyplastis* Dawson, has been known in Kent, England, since 1928. Fortunately, it does not cause decay of the bulbs, but it is described as a most destructive disease of narcissus foliage. The leaves and stems of one infected field under observation near Puyallup were so completely destroyed within a week after the first appearance that a passerby would not have known narcissus had been planted there.

DUTCH ELM DISEASE

A serious situation continued throughout the year in the area of more than 1,400 square miles centering about the port of New York, where the Dutch elm disease, *Graphium ulni*, was discovered in 1933. During the winter a force of workers was employed locating and destroying all diseased trees that could be identified while in the dormant condition, but resumption of active growth in the spring made it evident that several thousand wilting and dying trees remained in the area. It was also established that scolytid beetles by which *Graphium* is carried, had emerged from at least a few infected elms, rendering some further spread inevitable. As of Oct. 10, the vigorously prosecuted campaign for eradication had brought to light 7,416 *Graphium* infected elms located within the area as follows: New Jersey, 4,940; New York, 2,420, and Connecticut, 56.

Outside this area, a new center of four infected trees was found near a veneer factory in Indianapolis to which a shipment of imported elm logs had been traced, and one additional tree was detected in Cleveland, making a total of 11 in Ohio, including the original outbreak in 1930, adding a single specimen found in Baltimore in 1933 brings the total known infections, as of Oct. 10, 1934, to 7,432. The carrier is not established in either Ohio or Indiana and apparently the disease does not spread there.

At the close of the growing season, no *Graphium* infection was known to exist in Ohio, Indiana, or Maryland; the eradication program in New York and in Connecticut was well in hand; but in New Jersey, confronted by a much larger task and with inadequate appropriations, officials faced the alternatives of finding means of destroying the infected trees before the dormant beetles shall have emerged from hibernation in the spring or of witnessing further destructive spread of the disease and, quite possibly, the disappearance of the American elm.

XI. AGRICULTURE AND ALLIED INDUSTRIES

INSECT PESTS

By James A. Hyslop

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GRAIN PESTS

Grasshoppers. — Severe grasshopper outbreaks developed over the greater part of the upper Mississippi Valley and the Great Plains, requiring control campaigns in eighteen states. A survey conducted in the fall indicates that grasshoppers will be numerous enough over much of the infested territory to require control measures in 1935.

European Corn Borer.—There was a general decrease in infestation over the entire infested area. A very slight extension of the infested territory was recorded in Hamilton County, O.; Somerset County, Md.; Sussex County, Del.; Cumberland County, N. J.; and Northampton County, Va.

Chinch Bug.—One of the most severe and widespread infestations by the chinch bug ever recorded developed in the Corn Belt States during the year. The extremely mild weather conditions and dry spring occurring over a considerable portion of the territory permitted a high percentage of the large fall population to overwinter successfully. Extensive control operations in the Corn Belt States were required to protect the corn from migrations from small grains. More than 8,000,000 gallons of creosote were used in barrier construction. Fall surveys indicate that populations are heavier in general now than they were last fall, and the area infested is considerably larger than that of last year, reaching the northern boundary of Iowa, into the southern tier of counties in Minnesota and Wisconsin, and well up into the State of Michigan.

Hessian Fly.—At harvest time the hessian fly was at a very low ebb in numbers throughout the winter wheat regions. As the season progressed infestations increased east of the Appalachian Mountains. In the East Central and West Central states there is but little prospect of serious damage next year, except in a few isolated localities.

Corn Ear Worm.—Heavy damage was reported from the Carolinas to southern Iowa and Kansas. In the early and later season similar damage was reported from the East Central States. There was probably more damage by this insect in the upper Mississippi Valley than there has been for many years.

Green Bug.—Early in the spring serious damage was caused to wheat by the green bug in Kansas and eastern Oklahoma, and the eastern half of Colorado. Lighter damage was occasioned to oats in this territory.

Alfalfa Weevil. — Although early in the season there were indications of menacing abundance of weevils throughout the hay regions of Utah, western Nevada, and the infested area of southern Oregon, later climatic conditions reduced the insect to below normal. No new extensions of the weevil-infested territory were discovered during the year.

COTTON PESTS

Winter survival of the boll weevils was very low along the Atlantic Coast, while in the lower Mississippi Valley and Louisiana survival was one of the highest on record. During the growing season dry weather held down infestations. Following midsummer rains populations developed rapidly and considerable damage was caused to the late crop in southeastern Oklahoma and eastern Texas.

FRUIT PESTS

Codling Moth.—In the New England, Middle Atlantic, and East Central States there was considerable winter mortality of codling moth larvae that were passing the winter above the snow line. In the Western and Northwestern States, winter mortality was negligible. On the west coast spring emergence was from 10 to 20 days earlier than usual. As the season advanced it became evident that this insect was more abundant than usual in the East Central States, about normal in the Eastern States, and below normal in the Pacific Northwest. Late in the season a heavy third brood practically offset the earlier light infestations.

Plum Curculio.—Over the greater part of the country plum curculio populations were about normal. The infestation was heavier than usual in Georgia, and the heaviest since 1918 in Alabama. In Georgia the principal damage was done to Elbertas by the second brood.

Grape Leafhopper. — The worst outbreak of this insect in many years developed in the San Joaquin Valley of California. Heavy infestations were also reported from the Lake Region in New York, westward to Nebraska and Kansas. In the Niagara District in New York the damage was more severe than it has been for many years.

Citrus Blackfly.—An infestation of this insect, heretofore not known in the United States, was discovered at Key West, Fla., this year, and an intensive survey indicates that the infestation is confined to the Island of Key West.

VEGETABLE PESTS

Vegetable Weevil. — This insect continues to damage winter truck crops in the Gulf region. It is not so injuriously abundant as usual. In California this insect has been found for the first time in the Sacramento Valley and in southern California. In addition to attacking truck crops, it was found on avocado and citrus fruit trees.

Mexican Bean Beetle. — Despite the very severe winter temperatures experienced over the Eastern States in the winter of 1933-34, the Mexican bean beetle maintained its infestation throughout the known infested territory. Populations, however, were considerably lower than last year early in the season, but by fall the insect had apparently entirely reestablished itself. Further extension of the known infested territory to the northeastward was recorded from Sagahadoc, Lincoln, Knox, Waldo, and the southeastern part of Penobscot, and the southern part of Somerset Counties, Me. It was reported for the first time from Orange and Windsor Counties, Vt., and extended its range in Mississippi southward to Stone County and westward to Webster County.

Pea Aphid.—Early seeded vetch and pea fields in Oregon and California were heavily infested in the early spring. As the spring advanced damage to alfalfa was reported from Indiana and Nebraska, southward to Mississippi and westward through the Great Basin to the Pacific Northwest. By the end of March vetch and field peas were being destroyed in the Willamette Valley of Oregon and in the Puyallup Valley of Washington. Heavy infestations of the pea aphid were reported this spring from the cannery sections of Michigan and Wisconsin, but high temperatures during late May reduced these infestations.

Pea Moth.—The pea moth was reported as causing considerable loss to pea growers in Whatcom and Skagit Counties, Wash., during the summer. The insect was also reported from British Columbia about the same time. These constitute the first records of occurrence in the western part of North America. The first record of appearance in the United States was made in 1908 in Charlevoix County, Mich. Since that time it has been reported from Wisconsin, Indiana, and New York. It has been known in Canada since 1893, and occurs from Manitoba eastward to Nova Scotia.

Beet Leafhopper. — Unexpected migrations from wild breeding places into the sugar beet areas resulted in the abandonment of a considerable portion of the acreage that had been planted in Idaho. Heavy populations were also observed in Utah and western Colorado. On the other hand but little damage occurred from curly top over the greater part of the beet growing areas of California. This is believed to have been due to a control campaign put on in that State.

Tomato Pin Worm.—The tomato

pin worm has been established in several widely separated localities in the eastern United States during the last five years. It is now known to occur in Pennsylvania, Delaware, Florida, Mississippi, and Missouri, in addition to the older infestation in California and Western Mexico. Most of the infestations in the East are in scattered localities, usually on greenhouse-grown tomatoes, or in the immediate vicinity of greenhouses. Infestations were so heavy this year in southern California that in many cases the entire crop was abandoned.

TREE PESTS

Dutch Elm Disease.—The discovery of great numbers of elm trees affected by the Dutch elm disease in New York, New Jersey, and Connecticut, has attracted considerable attention to the European elm bark beetle which is one of the agencies by which this disease is spread. This beetle has been found at a number of points in Connecticut, Massachusetts, New Jersey, New York, and Pennsylvania.

Japanese Beetle. — The area continuously infested by the Japanese beetle at the end of the 1934 season is estimated at 9,700 square miles, an increase of 900 square miles over 1933. The most outstanding records of infestation outside of the regulated area were at St. Louis, where the beetles were collected in such numbers as to indicate an established infestation; at Indianapolis, Charlottesville, Va., and East St. Louis, Ill.

LIVESTOCK PESTS

Screw Worm.—Following the serious outbreaks of 1933, heavy outbreaks started to appear early in the season in the Southern States, and in isolated areas in the North Central States. By the close of the season this insect had appeared as an important pest in 57 counties in Florida, 120 counties in Georgia, the southern third of South Carolina, the southern half of Alabama, Mississippi, and Louisiana, and the coastal region of Texas.

AGRICULTURAL MARKETING

By Frederick V. Waugh

Bureau of Agricultural Economics, Department of Agriculture

RECOVERY PROGRAM FACTORS

The past two years have been marked by perhaps the most rapid and far-reaching changes in marketing of agricultural products of any years in recent times. The passage of the Agricultural Adjustment Act and other recovery measures in 1933 were followed quickly by the authorization of the Agricultural Adjustment Administration, the National Industrial Recovery Administration and several other agencies. While the most important of these agencies were set up in 1933, the full effects of the program could not be observed until 1934. During 1934 it is obvious that the control of production of agricultural commodities, the industrial codes, the marketing agreements under the AAA, the buying of food products by Federal relief agencies, and other steps taken under the Recovery Program have held a profound influence on the marketing of agricultural products.

PRODUCTION CONTROL

Agricultural production was sharply decreased in 1934. The greatest single factor in this decrease was the most serious drought ever recorded in the United States which greatly reduced the yields of grain and cotton and will doubtless reduce the marketings of livestock and livestock products in 1935. Another factor which tended to reduce agricultural production in 1934 was the Agricultural Adjustment Program by means of which farmers cooperated with the Department of Agriculture in reducing their acreages of wheat, corn, cotton, tobacco and rice and also in reducing their numbers of hogs. These adjustments were made in the attempt to bring about a more balanced production and to raise the purchasing power of farmers. Most previous attempts to control agricultural production have failed. The method of processing taxes and benefit payments provided for by the Agricultural Adjustment Act appears to have been successful at least during the first two years of its operation.

The first two years of the operation of the Agricultural Adjustment Act have demonstrated that it is possible to reduce the production of agricultural products. It is apparent, however, that a continued and progressive reduction every year in agricultural production would be undesirable from all standpoints. A permanent program of adjustment cannot be one of reduction only but must be a flexible plan allowing for expansion or contraction in different directions as warranted by the agricultural outlook.

So far the adjustments in agricultural production have been made for the most part by voluntary agreements between individual producers and the Agricultural Adjustment Administration. During 1934, however, this voluntary program was supplemented in the case of cotton and tobacco by penalties on the non-cooperator. It remains to be seen whether the control of production will be worked out satisfactorily on a voluntary basis or whether some degree of compulsion will be required to maintain a desirable balance in agriculture. The Bankhead Act, passed April 21, 1934, provides that 10,000,000 bales of cotton may be ginned free of a ginning tax in the crop year 1934-35. This amount of tax-exempt cotton is allotted to individual farmers according to their previous cotton acreages. If more than the allotted amount of cotton is produced, it is subject to a tax of 50 per cent of the average central market price of ⅞ inch middling spot cotton. The Kerr-Smith Tobacco Act, approved June 28, 1934, provides for a tax on tobacco of any type covered by the production adjustment program and provides for the issuance of tax payment warrants to all producers who have signed the production adjustment contracts.

MARKETING AGREEMENTS

The Agricultural Adjustment Act provides not only for production adjustments but also for marketing agreements. These agreements are not limited to commodities designated as basic commodities by the Act but can be applied to any commodity. During 1934 agreements have been made regulating the marketing of a number of agricultural commodities including several fresh and canned fruits and vegetables and milk. The various marketing agreements which have been tried during the past year have included a number of different kinds of provisions most of which are intended to raise prices to producers. Some of the earlier agreements definitely fixed the price which was to be paid to producers and in some cases also the resale price. In most cases it has been found difficult to control prices without an effective control of supplies moving into market channels, and at the present time most marketing agreements include some supply control features such as limitation of the pack of canned fruits and vegetables, limitation of shipments, the allocation of supplies among different markets, the control of the shipment of low grade products and the conversion of a portion of the supply into by-products.

Most of the emphasis on the marketing agreements so far has been on the raising of prices to the producer. It is possible that the marketing agreements as well as the industrial codes under the NRA may be developed in such a way in the future as to improve the efficiency of marketing to reduce the spread between prices received by the producer and prices paid by the consumer, to give better service to both producer and consumer, and to suppress unfair methods of competition.

OTHER FEDERAL MARKETING LEGISLATION

It will not be attempted in this short statement to discuss all the marketing legislation passed during 1934. The following list includes some of the most important legislation affecting the marketing and distribution of agricultural commodities: legislation providing for reciprocal trade agreements, the control of the securities exchanges, the Gold Reserve Act, the Silver Purchase Act, the Farm Mortgage Corporation Act, the Communications Act, amendments to the Perishable Agricultural Commodities Act, the mushroom basket amendment, and the seafood amendment of the Food and Drug Act.

The Congress also provided for an investigation of the marketing of dairy products to be conducted by the Federal Trade Commission. This investigation is under way at the present time.

TRANSPORTATION

The motor truck has become more and more important in the marketing of agricultural products during recent years and has made important changes in marketing methods and practices. For example, it has been one of the causes of the growth of the direct marketing of hogs in the Corn Belt. This growth of direct marketing of hogs and the consequent loss of business in the public stockyards has brought with it a number of difficult problems, and comprehensive study of this whole question is being conducted by the U. S. Bureau of Agricultural Economics. The Farm Credit Administration is making a general survey of the truck distribution of perishable farm commodities in the Northeast. It is apparent that in many cases the growth of motor truck transportation has not only greatly changed the method of marketing agricultural products but also has given advantages to certain producing areas and is gradually bringing about a relocation of certain agricultural industries.

CONSUMER INTEREST IN MARKETING PROBLEMS

One of the most notable developments in marketing during 1934 has been the increased interest of consumers and consumers' organizations which is probably at least partly the result of the work of the Consumers' Council of the AAA, The Consumers' Advisory Board of the NRA, and the consumers' section of the National Emergency Council. These organizations have kept groups of consumers throughout the country informed concerning price trends and marketing developments including the influence of recovery measures on prices and on consumer purchasing power. An example of the growing interest of consumers in marketing problems is the milk consumption survey made last summer in 64 cities by several women's organizations cooperating with the Consumers' Council of the AAA. This survey showed a wide spread of under-consumption of milk and other dairy products among families in the lower income groups. The organizations which conducted the survey are now working on a program of the improved milk distribution.

Another market problem which is interesting consumers much more than it ever has in the past is that of grading and identifying foods and other commodities bought by the consumer. Most of the grading and standardization programs developed in this country up to the present time have been primarily for use in the wholesale markets and only in a few cases have retail foods and other products bought by the consumer been graded and identified. It is becoming evident, however, that many consumers want a grading program which they can understand and use, and consumer organizations have been actively at work during the past year in promoting such a program.

COOPERATIVE MARKETING

Two important trends in cooperative marketing are noticeable during recent years. The first is the growth of national or regional sales agencies partly as an outgrowth program of the Federal Farm Board. In many cases sales agencies serve a number of cooperative associations and sometimes also individual shippers. The second development has been the marked growth in associations for the purpose of buying supplies rather than for the purpose of marketing farm products. It is estimated that in 1915 the business of cooperative buying associations represented 1.8 per cent of the total business done by cooperative associations in the United States. This percentage has grown to 11.1 in 1933-34. The business of the buying associations has not been limited to the buying of feeds and fertilizers although this continues to be their most important line of business. Many small associations have grown up during the past two or three years, however, for the purpose of buying general supplies, and a number of associations, particularly in the Middle West, have been organized for the purchase of gasoline and oil for farmers.

HORTICULTURE

By William A. Taylor and H. P. Gould

Bureau of Plant Industry, Department of Agriculture

WEATHER CONDITIONS

Winter Killing and Injury.—Horticulture crops are greatly subject to the influence of weather conditions, especially to temperature and moisture, the extremes of either being detrimental in proportion to their severity. The year, 1934, was one of exceptional extremes. In the Pacific Northwest, the winter of 1933-34 was unusually mild; in the North Central and Northeastern States, extremely low winter temperatures occurred, with new low minimum records in many places. These temperatures resulted in the killing of, or serious injury to many thousands of apple trees, largely of the Baldwin variety, though others were affected. It has been estimated that in New York alone more than 1,000,000 apple trees of bearing age were killed, and nearly 1,600,000 injured in commercial orchards and 325,000 killed or injured that were not of bearing age. In non-commercial apple orchards more than 850,000 trees, including those of bearing and non-bearing age, were killed or injured. Many thousands of pear, peach, plum, and other kinds of fruit trees were also lost. In parts of the New England States the injury to Baldwin trees was so great as practically to eliminate that variety, in the judgment of some, from further commercial planting. In the peach growing sections of these same areas, the crop was practically eliminated or very greatly reduced as a result of the fruit buds being killed by the low winter temperatures. In contrast, in central Georgia and adjacent sections the early winter was so mild that there was prospect of another experience of prolonged dormancy of the trees. This was averted, however, by a drop in the temperature later which gave the necessary accumulation of cold to bring the trees into renewed activity at the normal time so that a fair crop resulted in that region.

Heat and Drouth. — Unusually severe and prolonged heat and drouth prevailed in a larger area than ever before, the portion of the area important for its horticultural crops including Ohio, Indiana, Illinois, Michigan, Iowa, Nebraska, and parts of Kansas, Missouri, Kentucky, Wisconsin, Minnesota, western Pennsylvania, and western New York. During September, some parts of this area received precipitation in excess of normal, from 150 to 200 per cent, and even as high as 500 per cent in eastern Virginia and eastern Maryland, centering about the Chesapeake Bay and the Potomac River below the District of Columbia. However, much of the Ohio Valley and portions of the upper Mississippi Valley were still short of normal precipitation, with streams low and reservoirs depleted as late as Dec. 1. The results of the drouth varied naturally with its severity in different regions, but in the main it reduced the size of individual fruits, and consequently the total volume of marketable grades.

FRUIT CROPS

Apples.—The preliminary estimate of the total crop was about 120,247,000 bushels, 16 per cent less than the

1933 yield and 23 per cent less than the 1927-1931 five-year average of 156,300,000 bushels. The commercial crop—that part of the total sold for fresh consumption—was about 72,047,000 bushels (24,016,000 bbl.), which is 4 per cent less than the short crop of 1933 and about 5 per cent less than the 5-year average (1927-1931), of approximately 96,440,000 bushels (32,146,000 bbl.). Production in Washington and Oregon was nearly equal to the 1927-31 average. Only 4 states—Michigan, Arkansas, North Carolina, and New Mexico—had yields above this average. The factors primarily concerned in bringing about the smallest crop since 1927 were the exceptionally low winter temperatures and spring frosts in New England and New York, drought in the Central States, and insect damage—especially codling moth—in the Northwest. In general, cool weather and rains during the latter part of the season materially improved the size and color of the late apples, which in much of the drouth territory were very free from scab and other fungous diseases, though ripening abnormally early.

Peaches. — The estimate of 45,400,000 bushels was slightly more than the short crop of 1933 which was nearly 20 per cent below the 1927-1931 average of 56,280,000 bushels. Production in Georgia and California amounted to more than 26,000,000 bushels. Of the latter 13,500,000 bushels were clingstone varities grown in California for canning. There were substantial increases in 1934 as compared with 1933 in Tennessee, Arkansas, Texas, Colorado, Washington, and Oregon. In general, however, with certain unimportant exceptions, the crop was light in most of the other commercial peach-growing regions.

Pears.—The pear crop of 23,512,000 bushels was nearly 11 per cent more than the crop of 1933, and about 5 per cent above the 1927-1931 five-year average. The Pacific Coast States produced about 16,260,000 bushels, approximately the same as in 1933; New York State, more than 1,000,000 bushels. The next largest State yield was in Michigan—745,000 bushels.

Grapes.—The grape crop of about 1,740,000 tons was abundant, though approximately 9 per cent below the 1933 crop, and 24 per cent less than the 1927-1931 average. Of the total, 1,507,000 tons were grown in California. Michigan, with a yield of 61,145, was the next largest, with 51,450 tons in New York. Low winter and spring temperatures in the Northeast, and excessive summer heat and water shortage in California, were the factors largely responsible for the reduced yields.

Cranberries. — The cranberry industry is small compared with most commercial fruits, and is located in a very few districts isolated from one another, from the Cape Cod region in Massachusetts to the mouth of the Columbia River in Washington and Oregon. It is highly organized and regionally of large importance. The 5-year average (1927-1931) production is 563,256 barrels. For 1934, the estimate is 442,300 barrels, as compared with the large 1933 crop of 704,700 barrels.

Citrus Fruits.—The crop year with citrus does not coincide with the calendar year. The following figures are therefore prospective to some extent in that they relate to the 1934-35 crop now developing in comparison with the 1933-34 crop which was harvested from November, 1933 to April or May, 1934, for the principal harvest, and continuing until October, 1934, or later, to include the marketing of the Valencia orange crop from California.

The 1934-35 forecast for oranges in Florida is 21,000,000 boxes, of which 19,000,000 boxes are commercial, sold or to be sold for fresh fruit consumption, as compared with 18,100,000 boxes for the previous crop, and 13,757,000 as the 1927-31 average. The 1934-35 forecast includes 2,500,000 boxes of tangerines, of which 2,200,000 boxes are commercial. The 1934-35 forecast for Washington Navel and miscellaneous varieties of oranges is 13,650,000 boxes as compared with 11,861,000 boxes in the previous crop. The corresponding forecast for Valencia oranges in California is lacking because of the difference in time of bloom and maturing of the fruit of that variety. The 1933 Valencia crop amounted to 16,365,000 boxes.

The forecast for the 1934-35 grapefruit crop is 19,662,000 boxes, as compared with 14,243,000 for the previous crop. Of the total, 15,000,000 boxes are estimated for Florida, of which 11,000,000 boxes are commercial, — approximately 1,590,000 boxes for California, 2,000,000 or slightly more for Texas, and about 1,000,000 for Arizona.

PECANS

The pecan crop this year was estimated at about 40,355,000 pounds, a decided decrease from 61,210,000 in 1933. The 1927-1931 average is 56,222,000 pounds. The 1931 crop reached 77,800,000 pounds.

POTATOES

The potato ranks first in value and volume among the vegetable crops. The early crop from the Southern States comes into the market while the crop from the ''late'' states held in storage is still available in quantity. There is also an intermediate crop in season produced in Maryland, Virginia, and states westward to Kansas. The total estimated crop for 1934 was 362,391,000 bushels, of which about 290,000,000 bushels were produced in the ''late'' states. The latter figure is some 28,300,000 bushels larger than the light crop of 1933 from the same group of states, but not far from the 1927-1931 average. The prices for the late crop at digging time, however, were distressingly low.

FRUIT AND VEGETABLE UTILIZATION

During the year two factors have developed that concern horticulture. The repeal of the Eighteenth Amendment opens the way for the use of greatly increased quantities of grapes for wine and brandy making, and the establishment of sweet potato starch production on an industry basis, the starch being used in the manufacture of textiles. This development forecasts the possible utilization of considerable quantities of the raw material for a product entirely new to the sweet potato industry.

FRUIT HANDLING AND TRANSPORTATION

An effective and practicable method of using sulphur dioxide in retarding the growth of mold on grapes in transit or in storage has been developed to the point where it has been applied commercially with promise of much more extensive use in the future. It is the method of application, not the material, that is new. It consists of placing sodium acid sulphite or sodium metabisulphite in pads at the bottom of the container or mixed with the sawdust in which the fruit is packed. These chemical compounds give off sulphur dioxide slowly, thus providing long continued, but very slow fumigation with extremely low concentration. These appear, however, to be remarkably effective in controlling molds.

The shipment of large quantities of fruits and vegetables by motor truck instead of by rail appears to be increasing. In five days during the 1934 strawberry season in Eastern Shore, Maryland, 110 cars of berries were shipped by rail, and 200,000 crates, equal to more than 800 cars were transported by truck. Increasingly large quantities of peaches from Georgia were shipped by truck during the past season to Baltimore, Cleveland, Cincinnati, St. Louis, Columbus, Washington, and other points.

MARKETING AGREEMENTS AND CODES

The development of marketing agreements begun in 1933 under the authorization of the Agricultural Adjustment Act continued in 1934. Progress in the operation of agreements indicates that this method of handling certain marketing problems is effective and can be operated in a practical manner by an industry committee. While the primary enforcement of an agreement is dependent upon the voluntary compliance of the large portion of the industry involved, Government activities have progressed far enough to be supported in a number of cases in the Federal Courts.

On the whole, the voluntary compliance by the large number of distributors involved has been most satisfactory and the enforcement activity has been largely limited to the handling of test cases.

On Dec. 1, 1934 there ware 20 agreements in effect covering fruits and vegetables. These include most of the fresh and dried fruits grown on the Pacific Coast. In addition, the three separate state agreements covering citrus fruits in California, Florida, and Texas have operated through the 1934 season in the respective states. A revised agreement was placed in operation in Florida at the close of 1934 and a similar agreement is in the hands of the industry in Porto Rico for signature at this time.

The development of agreements has extended to vegetables, including potatos. Both fresh and canned asparagus in California were included as was Washington lettuce, peas, and cauliflower, and the current crops of Florida celery and strawberries are being marketed under agreements. Hearings have been held with respect to Mississippi and Texas tomatoes. A comprehensive program covering early potatoes in all of the early and intermediate states is in process of final development following hearings.

The code for the fresh fruit and vegetable distributive industry was approved by the President on July 16, and a complete organization of local committees has been set up for the operation of the code. In addition to the labor and wage provisions, the code prohibits certain unfair trade practices. Among these are destructive price cutting, unearned brokerage, and a number of provisions relating to the relationship between the principals and agents engaged in the marketing of fruits and vegetables. In addition, the code authorizes the organization and operation of local committees for the purpose of establishing ''Rules and regulations to meet local conditions such as credits, stabilization of markets, and hours of business.''

HORTICULTURAL LITERATURE

In the literature relating to vegetables the ''type books''—three of which have been issued by the U. S. Department of Agriculture, with others to follow, may prove epochmaking in their influence on the industry. The type books published to date are: Miscellaneous Publication No. 160—*Descriptions of Types of Principal American Varieties of Tomatoes;* No. 169—*Descriptions of Types of Principal American Varieties of Cabbage,* and No. 170—*Descriptions of Principal American Varieties of Garden Peas.*

The preparation of these type books is a cooperative effort among vegetable specialists of the Federal Bureau of Plant Industry and certain of the State Agricultural Experiment Stations. The aim is to determine the superior or preferred type or strain of the principal varieties with a view to encouraging their use and eliminating the less desirable ones.

These type-books and the ''Vegetables of New York'' series being issued by the New York State Experiment Station will complement each other to a considerable degree. The information in the experiment station series is monographic in scope with respect to varieties; that, in the Department of Agriculture series concerns more especially the standarization or stabilization of those varieties only which are of current commercial importance.

PLANT PATENTS

The total number of plant patents issued under the Amended Patent Law up to Nov. 30, 1934 is 113. The number issued up to Dec. 31, 1933, was 84, the number having been increased by 37 subsequent to the preceding Nov. 30. Thus 29 patents were issued between Jan. 1 and Nov. 30, 1934, as follows: Rose, 13; apple, 2; strawberry, 2; barberry, 2, and one each of peach, nectarine, plum, cherry, avocado, grape, raspberry, freesia, gardenia, and Juniperus.

FORESTRY

BY HERBERT A. SMITH

ASSISTANT FORESTER, UNITED STATES FOREST SERVICE

The outstanding features of 1934 in forestry were: (1) Progress toward a broader policy of public forest ownership; (2) Increased use of forest work for unemployment relief, and (3) Progress by the forest industries in applying forestry on private lands.

FOREST OWNERSHIP

Receding agriculture is increasing the forest land area (see THE AMERICAN YEAR BOOK, 1931, p. 422) of the continental United States. At what point agricultural land-use will eventually stabilize depends partly upon future national policies with respect to foreign trade, but the permanent forest area is not likely to fall much, if any, below the present total of 614,600,000 acres (nearly one-third of the entire land area), of which nearly 153,000,000 acres is Federally owned, 17,500,000 acres in state, county, and municipal ownership, and more than 444,000,000 acres in private ownership.

Private ownership has been largely temporary, to get the standing timber off. More than 50,000,000 acres of the land classed as privately owned is tax-delinquent for three years or more. Most states have not yet accepted the fact that a breakdown of private ownership is creating a large twilight zone between public and private forest land. Reverting farm lands add to the amount. State action to provide for taking over tax-abandoned forest or cleared lands best suited to permanent use as public forests is badly needed, and has been taken in a few cases—notably in the three Lake States.

Economic forces are slowly and wastefully working out a two-fold adjustment—the shift of agriculture to the right land, and the shift of much privately owned forest land into compulsory public ownership. Planned land use is necessary to hasten the adjustment and lessen the intervening social and economic waste. In the originally forested regions the readjustment of agriculture can be materially aided by voluntary public acquisition of submarginal farm lands for reforestation, together with public assistance to the displaced poverty farmers in relocating on more productive land. Similarly, public acquisition of private forest lands on their way to abandonment anticipates the inevitable reversion, while permitting forest management to begin rebuilding the forest with less delay and from a less depleted condition.

In the latter part of the year the Forest Service and cooperating agencies gathered for the land planning committee of the President's National Resources Board data on land use and ownership covering 897,100,000 acres, located in 1,756 counties or parts of counties in which forest land made up half or more of the total land area. The forest land totaled 530,600,000 acres — seven-eighths of the total for the entire country; the privately-owned lands, forest and nonforest, 596,700,000 acres, of which 291,600,000 acres were in farms, 35,700,000 in grazing and other open lands not in farms, 265,000,000 in forest lands not in farms, and 4,400,000 devoted to special services (recreation, etc.). Ninety million acres, or 18 per cent, of the private land was tax-delinquent for 3 years or more, including 32,600,000 acres, or 13 per cent, of the land in farms.

The permanent forms of use of this 897,100,000 acres (47 per cent of the entire land area of the continental United States) offering greatest promise of maximum common benefit were held to be: Production of cultivated farm crops, 110,300,000 acres, of which 6,000,000 acres is now forest land; pasturage of domestic livestock, 183,000,000 acres; forest management, 546,600,000 acres, and use for parks and other recreational and inspirational special services, 57,200,000 acres. The proposed permanent ownership would raise the Federal total from the present 270,300,000 acres, of which 148,600,000 are forest land, to 405,200,000, of which 268,600,000 acres would be under forest management and 38,500,000 devoted to special services. Similarly, an increase of state ownership from the present 22,700,000 to 77,000,000 acres was proposed.

For the entire country it was held that Federal forest land ownership should be increased by 118,000,000 acres, and state by 60,000,000 as against the "National Plan" program (see THE AMERICAN YEAR BOOK, 1933, p. 474) of Federal 134,000,000 acres and state 90,000,000. In 1934 the Roosevelt policy of an enlarged and accelerated acquisition program for eastern National Forests was continued, adding 5,000,000 acres to the 1,900,000 acres purchased or contracted for in 1933 and bringing the increase since March 4, 1933, to 1½ times the prior total for the 22 years since the Federal purchase policy was inaugurated in 1911. At the close of the fiscal year 1934 there were 145 National Forests and 31 additional units within which lands are being acquired but which have not yet been formally proclaimed as National Forests, with a total gross area of 204,400,000 acres[1] and a net (*i.e.*, Federally owned or contracted for) of 167,300,000 acres. State-owned forest lands now under administration as forests and parks aggregate about 7,000,000 acres.

FORESTS AND UNEMPLOYMENT RELIEF

Continuance of the Civilian Conservation Corps (see THE AMERICAN YEAR BOOK, 1933, p. 475) throughout 1934 and until March 31, 1935, was authorized by the President for two additional six-month enrollment periods. Further continuance will require new legislation, which presumably will be sought, since President Roosevelt has said that "this kind of work must go on." The Emergency Conservation Work has been chiefly in improving conditions on the National Forests (the major activity) and on state and to some extent on private lands, and in erosion-control undertakings in 39 states. The accomplishments, too diversified to be summarized here, make up a public investment of vast money value in resource improvement and protection. The expenditures for the first 12 months were approximately $296,000,000.

Public Works and Civil Works funds afforded further opportunities for unemployment-relief work on National and state forests. In the fiscal year ended June 30, 1934 the National Forests alone provided more than 1,400,000 man-days of relief work on planned projects executed under the Civil Works program, more than 2,500,000 under the Public Works program (not including the work performed through an allocation to the Bureau of Public Roads of $15,000,000 for constructing forest highways), and, including the CCC, approximately 26,000,000 man-days all told. The estimated needs of the National Forests are for more than 18,000,000 man-days of work annually for 5 years, and around 12,000,000 man-days annually thereafter.

An adequate forestry program for the entire country would multiply this work demand of the forests several times. Hitherto, forest use has been mainly a process of draining capital out of the forest. To rebuild the depleted resource, capital and labor must be reinvested in it. This opens a new work field for the unemployed in agriculture and industry. The whole forest problem of the country is essentially one of making one-third of our land area contribute up to its capacity toward permanent population support on a high living level, with permanent communities based on steady forest productiveness, not boom towns and tributary rural development during exploitation followed by ghost towns and rural decadence after forest-capital exhaustion.

FOREST INDUSTRIES UNDER NIRA

So-called industrial forest-land ownership totals 269,500,000 acres. It includes both the holdings of the operating industries and speculative or investment private holdings, individual and corporate, awaiting the development of future operating demands. The estimated saw-timber stand involved totals 864,800,000,000 board feet (of which two-thirds is in the Pacific Coast region), as against a pre-depression annual cut of 54,600,000,000 board feet, some of which came from public holdings and farm woodlands. The difficulties of the lumber industry, the largest of the forest industries, resulting from the pressure of carrying charges on too much timber owned, over-expanded mill capacity, and unsound financial structure based on over-valued stumpage and operating policies of "cut out and get out," were sketched in THE AMERICAN YEAR BOOK, 1933 (p. 474) and 1931 (p. 423). Industrial production control under governmental sanction, to facilitate orderly marketing and curb cut-throat competition, has long been sought by the lumber trade organizations, which consequently welcomed the New Deal provisions for self-government in industry.

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[1] Including 21,400,000 acres in 2 National Forests in Alaska and 177,000 acres in Puerto Rico.

The public interest necessitates conversion of the industry from one engaged, as a rule, in liquidating forest capital into one operating on sustained forest yield, *i.e.* on the annual forest increment through growth, with permanent establishments contributing to the support of permanent communities and to sound land use. Under its National Recovery Act code the lumber industry, together with various allied industries, undertook "to conserve forest resources and bring about the sustained production thereof." In conference with public agencies, both National and state, principles to govern woods practices were formulated, to which President Roosevelt gave formal approval March 23, 1934. Regional rules of practice requisite for applying these principles went into effect June 1, 1934. Their enforcement is through Regional Code Authority bodies, acting under the Code Authority for the lumber and timber products industries. The Authority includes three non-voting members appointed by and representing the President, of whom one is the Chief of the United States Forest Service, and the Forest Service is represented on all the Regional Authority bodies.

The lumber code authorized production control and minimum prices, both regarded by the applicant industries as essential for their stabilization and for permitting practices of forest conservation. Production control has proved difficult, and price control worked so badly in practice that it was suspended at the close of the year.

The code provisions were an experiment in providing the means of self-regulation sought by the industries, to serve public ends. The present rules of woods practice aim merely at keeping forest lands producing, an important first step toward conserving forest capital instead of liquidating it as thoroughly as possible, but a long remove from putting operations on a sustained-yield instead of a depletion basis. Even for their limited objective, the present rules of practice are of imperfect efficacy. Greater regulatory control than industrial self-regulation seems to promise is probably the only way, short of public ownership of the bulk of the industrial timber holdings, to stop progressive depletion and to substitute for nomadic lumbering permanent enterprises of forestry supporting permanent manufacturing plants and permanent communities.

FISHERIES

BY CHARLES E. JACKSON

DEPUTY COMMISSIONER, U. S. BUREAU OF FISHERIES

ECONOMIC FEATURES

General conditions in the fisheries have shown marked improvement in the past year as reflected in increased commercial catches of fishery products, greater activity in processing industries and generally higher price levels for the products of the fisheries. Recovery legislation has had its effect, in the fisheries as well as in other industries resulting in more optimistic views held for the future.

Production.—The commercial fisheries of the United States and Alaska in 1932 yielded products aggregating 2,614,140,000 pounds, valued at $54,764,000 to the fishermen and gave employment to about 116,000 fishermen. The pack of canned fishery products in 1933 amounted to 532,146,000 pounds, valued at $59,633,000; fresh and frozen packaged fish, 58,884,000 pounds, valued at $6,410,000; frozen fish, 95,874,000 pounds, with an estimated value of $8,000,000, and byproducts were valued at $17,248,000. Our foreign fishery trade in 1933 amounted to $38,052,000 of which $30,444,000 represents the value of products imported for consumption and $7,608,000 the value of exports of domestic fishery products. The most recent statistics on the production of cured fishery products which are for 1931 show a production of this group amounting to 98,969,000 pounds, valued at $12,364,000. In the same year it was estimated that about 600,000,000 pounds of fishery products, valued at $47,000,000 were marketed fresh.

MANUFACTURED PRODUCTS

Canned Products.—There were 377 establishments engaged in canning fishery products in the United States and Alaska during 1933. The total production amounted to 13,087,000 standard cases (532,146,000 pounds net weight), valued at $59,633,000. Salmon canned on the Pacific Coast, principally in Alaska, accounted for 6,362,000 standard cases (305,398,000 pounds), valued at $36,242,000. The production of tuna and tunalike fishes canned in California only, amounted to 1,443,000 standard cases (34,635,000 pounds), valued at $6,934,000. The output of canned sardines which are produced in California and Maine amounted to 2,520,000 standard cases (98,416,000 pounds), valued at $6,203,000. The other fishery products which were canned consisted largely of shrimp, mackerel, clam products, and oysters.

Byproducts. — The production of fishery byproducts during 1933 in this country was valued at $17,248,000. The more important products in this group consisted of fresh-water mussel shell products, valued at $4,519,000; marine-pearl shell products, valued at $3,749,000; 129,000 tons of marine animal meal and scrap, valued at $3,843,000; 313,000 tons of oyster shell products, valued at $1,544,000, and 17,682,000 gallons of marine animal oils, valued at $2,623,000. The remainder of the output consisted of liquid glue, pearl essence, kelp products, agar agar, shark skins and fins and fish-scale novelties.

Cured Products.—During 1931 the production of cured fishery products in the United States and Alaska amounted to 98,968,945 pounds, valued at $12,364,364. The more important cured products with respect to value were smoked salmon, including kippered salmon, amounting to 9,753,833 pounds, valued at $2,517,027; smoked cisco, chubs, and tullibee, 6,331,125 pounds, valued at $1,741,380; mild-cured salmon, 10,159,650 pounds, valued at $1,550,048; smoked sturgeon, 1,767,676 pounds, valued at $1,186,445; and boneless cod, 12,204,671 pounds, valued at $1,047,236.

Packaged Fresh and Frozen Fish. — Packaged fresh and frozen fish were prepared at 153 primary plants in 1933 which were operated in 12 states. The output amounted to 58,884,000 pounds, valued at $6,410,000. By far the most important single packaged fish was haddock which amounted to 35,146,000 pounds, valued at $3,456,000. While the fish were prepared in various manners before packaging filleting was the dominant method of preparation, the production of fillets alone amounting to 56,057,000 pounds, valued at $6,091,000.

Frozen Products. — During 1933 freezing plants located in the United States and Alaska which reported their activities to the Government packed 95,874,000 pounds of frozen fishery products with an estimated value in the cold-storage warehouses of $8,000,000. The principal products frozen were mackerel, haddock, salmon, halibut, and whiting.

NEW ENGLAND STATES

The fisheries of Maine, New Hampshire, Massachusetts, Connecticut, and Rhode Island in 1932 employed 16,580 commercial fishermen whose catch amounted to 480,521,000 pounds, valued at $14,001,000 which is a decrease of 10 per cent in volume and 28 per cent in value as compared with the preceding year. In 1933 landings of fish by American vessels at Boston, Gloucester, and Portland amounted to 267,157,000 pounds, valued at $6,851,000 which is an increase of 6 per cent in quantity and 13 per cent in value as compared with the previous year. The packaged fish industry in New England in 1933 produced products aggregating 48,935,000 pounds, valued at $4,800,000. In the same year the production of sardines in Maine amounted to 981,000 standard cases, valued at $2,397,000.

MIDDLE ATLANTIC STATES

In 1932 the commercial fisheries of New York, New Jersey, Pennsylvania, and Delaware employed 9,155 fishermen whose catch amounted to 141,221,000 pounds, valued at 4,654,000 or a decrease of 7 per cent in volume and 36 per cent in value as compared with 1931. During 1933 landings by fishing vessels at New York City amounted to 25,455,000 pounds. In the same year 317 fishermen were employed in the shad fishery on the Hudson River and their catch amounted to 154,400 shad with a total weight of 518,700 pounds and a value to the fishermen of $40,700.

CHESAPEAKE BAY STATES

The commercial fisheries of Maryland and Virginia in 1932 employed 21,084 fishermen whose catch amounted to 359,007,000 pounds, valued at $5,905,000 which is an increase of 26 per cent in the catch but a decrease of 18 per cent in its value as compared with 1931. Of this catch market oysters accounted for 27,890,000 pounds of meats, valued at $2,015,000 and crabs accounted for 61,513,000 pounds, valued at $901,000. The menhaden industry in Virginia in 1933 produced products consisting of scrap, meal, and oil, valued at $655,000.

SOUTH ATLANTIC AND GULF STATES

During 1932 the commercial fisheries of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, employed 21,560 fishermen whose catch amounted to 299,917,000 pounds, valued at $6,428,000 or an increase of 4 per cent in the volume of the catch but a decrease of 20 per cent in its value as compared with the previous year. The production of canned shrimp in 1933 in this area amounted to 860,500 standard cases, valued at $3,479,000 while the production of canned oysters amounted to 348,000 standard cases, valued at $1,075,000.

PACIFIC COAST STATES

The commercial fisheries of Washington, Oregon, and California in 1932 employed 17,882 fishermen whose catch amounted to 560,828,000 pounds, valued at $9,484,000 or a decrease of 6 per cent in the volume of the catch and 30 per cent in its value as compared with the preceding year. During 1933 the pack of canned salmon in these States amounted to 1,137,000 standard cases, valued at $7,866,000; sardines, 1,539,000 standard cases, valued at $3,805,000; and tuna and tunalike fishes, 1,443,000 standard cases, valued at $6,934,000. In the same year 22,147,000 pounds of halibut were landed at Seattle.

LAKE STATES

During 1932 the commercial fisheries of Lakes Ontario, Erie, Huron, Michigan, Superior, and Namakan Lake and Lake of the Woods and Rainy Lake in the United States and Canada produced 110,675,000 pounds of fishery products. Of the total, the United States accounted for 83,744,000 pounds, valued at $4,332,000. The catch in the United States was made by 6,932 fishermen.

MISSISSIPPI RIVER AND TRIBUTARIES

The commercial yield of the fishery products in the Mississippi River and tributaries during 1931 amounted to 82,382,523 pounds, valued at $2,897,357, which is a decrease of 22 per cent in the catch and 36 per cent in its value as compared with the catch and its value for 1922 when the latest preceding survey was made. Of the total catch in 1931, 44,061,714 pounds, valued at $2,257,204 were fish and 38,320,809 pounds, valued at $640,153 were shellfish (principally mussel shells) and miscellaneous products. The fisheries of the Mississippi River and tributaries during 1931 gave employment to 15,884 fishermen. Data on the fisheries of this area for 1932 are not available.

ALASKA FISHERIES

Catch.—The fisheries of Alaska during 1933 employed 8,656 fishermen. The catch in the round weight, exclusive of whales, amounted to 627,395,274 pounds, valued at $9,088,984. The round weight of whales could not be determined, but their products amounted to 3,378,125 pounds, valued at $68,989. Of the total catch, exclusive of whales, 467,348,858 pounds, valued at $7,498,037, consisted of salmon; 157,337,810 pounds, valued at $1,443,414, consisted of other fish, and 2,708,606 pounds, valued at $147,533, consisted of shellfish.

Output.—There were 224 establishments (exclusive of duplication) engaged in the fisheries trade in Alaska in 1933. Of these, 108 canned fish, 124 cured fish, 12 manufactured byproducts, and 42 handled fresh and frozen fishery products. The output of these estalishments amounted to 345,957,147 pounds, valued at $32,126,588. The salmon industry was by far the most important and produced 263,240,209 pounds of products, valued at $29,404,072. The herring industry was next in importance and produced 63,296,176 pounds of products, valued at $1,402,194. The halibut industry ranked third and produced 14,068,911 pounds of products, valued at $726,362. Of the remainder, clam and crab products were most important in value.

FISHERIES OF THE UNITED STATES AND ALASKA, 1932[1]

Sections	Fishermen	Fishing vessels	Fishing boats	Catch	
	Number	Number	Number	Pounds	Value
New England States	16,472	620	8,395	480,521,000	$14,001,000
Middle Atlantic States	8,370	415	3,639	141,221,000	4,654,000
Chesapeake Bay States	20,946	322	14,230	359,007,000	5,905,000
South Atlantic and Gulf States	21,560	512	12,849	299,917,000	6,428,000
Pacific Coast States	17,882	937	6,029	560,828,000	9,484,000
Lake States	6,932	498	3,159	83,744,000	4,332,000
Mississippi River and tributaries	15,884	....	14,546	82,382,000	2,898,000
Alaska	8,059	446	4,138	606,520,000	7,062,000
Total	116,105	3,750	66,985	2,614,140,000	$54,764,000

[1] All data are for 1932 except those for the Mississippi River and tributaries which are for 1931.

Fur Seals.—The Pribilof Islands fur-seal herd, which is under the jurisdiction of the Department of Commerce, Bureau of Fisheries, now numbers about 1,430,400 animals. It was possible to kill 53,468 surplus males this year without affecting the normal growth of the herd. The skins are sold at public auction for the account of the Government. At the sale held on April 30, 1934, at St. Louis, 17,617 black dyed skins and 10,039 logwood-brown dyed skins, a total of 27,656 were sold at a gross price of $573,935.50. In addition, 559 blue-fox skins from the Pribilof Islands were sold for $19,967.50.

SCIENTIFIC INVESTIGATIONS

Biological Studies.—With the continuing drain on the natural supply, there has been realized the greater need for a wise program of husbandry of our aquatic resources. This involves careful biological studies to determine the condition and trend of each important fishery as a basis for regulation and the development of water farming or aquiculture to increase the productivity of water areas. In large measure the states depend upon the National Bureau of Fisheries for the conduct of such investigations. Its major research activities include studies of the cod, haddock, mackerel, flounders, squeteague, and scup of the North Atlantic, shrimp in the South Atlantic and Gulf; the five species of salmon, and herring of the North Pacific; oysters on both coasts; the fresh-water mussels of the Mississippi Valley, and the important food fishes of the Great Lakes. Excellent progress is being made in the farming of oysters on an enlarged scale and in developing methods for the cultivation of fresh-water mussels in interior waters.

Technological Studies.—Since agriculture and fisheries represent the two basic food industries, and since the fisheries represent one of our vital natural resources, it is essential to conduct technological investigation which will bring about the wisest husbandry and uses of our fishery harvest in order to render fullest economic value to the nation. To carry out this important function, the Bureau maintains a technological staff which consists of highly trained chemists, engineers, bacteriologists, and general technologists, to study and develop methods of manufacture, preservation, commercial handling and marketing of marine products. These technological studies cover the general subjects of nutrition, development of production methods, engineering, and bacteriological investigations, to improve these products for human and animal nutrition, and the chemical preservation of fishing nets and gear to cut down the costs of fishing. As may be readily seen, all of these investigations tend to reduce costs of production, and to give the consumer a better product at lower prices. Since we are dealing with a food industry in this instance, it is important to note that marine products are a good source of vitamins, contain minerals in quantity and variety, and are an economic source of highly digestible proteins. Our national dietary cannot help but benefit from an increased per capita consumption of fishery products in the United States. They are of value for both man and his domestic animals.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF NURSERYMEN, P. O. Box 355, Louisiana, Mo.

AMERICAN COUNTRY LIFE ASSN., 105 E. 22nd Street, New York City.

AMERICAN FARM BUREAU ASSN., 58 E. Washington St., Chicago, Ill.

AMERICAN FORESTRY ASSN., 1713 K St., N. W., Washington, D. C.

AMERICAN NATIONAL LIVESTOCK ASSN., 515 Cooper Bldg., Denver, Col.

AMERICAN ORNITHOLOGISTS' UNION, 1939 Biltmore St., N. W., Washington, D. C.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.

AMERICAN POULTRY ASSN., Fort Wayne, Ind.

AMERICAN SOCIETY OF AGRONOMY, Room 25, Hall of Agriculture, Iowa State College, Ames, Ia.

AMERICAN SOCIETY OF ANIMAL PRODUCTION, University of Nebraska, Lincoln, Neb.

AMERICAN SOCIETY OF EQUITY, 311 Daily Star Bldg., Minneapolis, Minn.

American Society for Horticultural Science, Lock Box 299, Geneva, N. Y.

American Society of Mammalogists, Johns Hopkins Medical School, Baltimore, Md.

American Veterinary Medical Assn., 716 Book Bldg., Detroit, Mich.

Assn. of Land-grant Colleges and Universities, Newark, Del.

Boyce-Thompson Institute for Plant Research Inc., 1086 N. Broadway, Yonkers, N. Y.

Farm Women's National Congress, Clarksville, Ia.

Institute of American Meat Packers, 509 S. Wabash Ave., Chicago, Ill.

International Farm Congress of America, Continental Bldg., Kansas City, Mo.

Izaak Walton League of America (the), 214 W. Huron Street, Chicago, Ill.

Jewish Agricultural Society, Inc., 301 E. 14th Street, New York City.

Middle Atlantic Fisheries Assn., Bridge Arch No. 11, New York City.

National Assn. of Audubon Societies, 1775 Broadway, New York City.

National Board of Farm Organizations, 1731 I Street N. W., Washington, D. C.

National Dairy Council, 111 N. Canal St., Chicago, Ill.

National Educational and Cooperative Farmers' Union of America, 1731 I St. N. W., Washington, D. C.

National Fertilizer Assn., 676 Investment Bldg., Washington, D. C.

National Grange of the Patrons of Husbandry, 630 Louisiana Ave., N. W., Washington, D. C.

National Highways Protective Society, 7 Dey St., New York City.

National Livestock and Meat Board, 407 S. Dearborn St., Chicago, Ill.

National Poultry Council, Davisville, R. I.

People's Lobby, Inc., 113 First St. N. E., Washington, D. C.

Society of American Florists and Ornamental Horticulturists, 480 Lexington Ave., New York City.

Society of American Foresters, 810 Hill Bldg., 839 17th Street, N. W., Washington, D. C.

U. S. Livestock Sanitary Assn., 33 Livestock Exchange Bldg., Wichita, Kan.

Vegetable Growers' Assn. of America, c/o F. L. Allen Co., Philadelphia, Pa.

DIVISION XII

MINERAL INDUSTRIES

MINING AND ORE DRESSING

By Charles E. Locke

Professor, Massachusetts Institute of Technology

ECONOMICS

The year 1934 was marked by continued confusion and uncertainty in mining but withal an underlying hope for the better. Conditions were certainly no worse than in the preceding year and in some ways they were better. It brought us one year nearer to normal. Gold mining boomed and silver followed to a lesser extent. A growing distrust of the value of codes developed as well as apprehension over government interference with production and prices and other conditions in industry. Large stocks of some ores and metals were a deterring factor, especially the base metals copper, lead and zinc. The amount of scrap metal available is an important and increasing element in the material coming on the market. The old problem of uses for silver still exists. Fantastic schemes for recovery retard normal return which is tied up with the world problem of recovery, reestablishment of universal gold standard, lowering of tariff barriers, subsidence of intense nationalism, resumption of traffic and exchange and restoration of other conditions now abnormal. It is hardly likely that the rapid growth of the past will return, and the trend will be toward a more uniform era of stability corresponding to a slower growth of population and lower rate of expansion. Producers seem to be adjusting themselves to present conditions. They have definitely decreased losses and put their operations on a new economic basis at a reduced scale. This has not yet reached any great degree of prosperity which still looks to be a considerable distance ahead. With the growth of a higher civilization and wider education and knowledge of mineral products there is bound to come new products, new uses and new and greater demands. Some measure of success has been met by control of production, either through public regulations or through some form of private agreement such as a sales agency to avoid the antitrust laws. Federal aid has contributed little to mining so far but it holds some possibilities through the Industrial Loans Act. One unusual condition was the severe drought conditions in the West which forced curtailment of milling operations because of lack of water.

PRODUCTION

Iron ore shipped from Lake Superior ports serves as an excellent index of general mining conditions. Total shipments up to Nov. 1 were around 21,524,000 long tons with an expectation that the total for 1934 would be around 22,000,000 long tons as compared to a total of around 21,600,000 long tons in 1933. Steel ingot production for the month of January was 33.15 per cent of capacity and the succeeding monthly figures through October were 41.31, 46.44, 52.64, 56.39, 52.68, 26.75, 22.93, 22.74

and 24.59 per cent respectively. The average for the first ten months was 37.96 per cent or nearly 4 per cent higher than for the same period in 1934. These figures reflect the semi-boom conditions in the first half of the year, the big slump in the summer and the small but definite upturn in the fall. The first week of November showed 27 per cent, the second week 27.5 per cent and the third week 28.0 per cent.

PRICES

Data are available for only the first ten months of the year. Silver continued its upward advance of 1933 and rose from 44.188 cents per Troy ounce in January to 52.375 cents in October, 1934. The common metals generally averaged a little higher in 1934 than in 1933, although in the case of lead, zinc, tin, export copper, and platinum the October prices were the lowest of the year. Domestic copper rose from 7.890 cents per pound in January to 8.775 cents in July and held at that price through October. Export copper rose slightly from January to 8.053 cents per pound in April and then gradually declined to 6.315 cents in October. Lead in New York held at 4.000 cents per pound in January, February and March, rose to 4.179 cents in April and sagged off to 3.654 cents in October. Zinc in St. Louis was 4.271 cents per pound in January, 4.384 cents in February and fell off month by month to 3.832 cents in October. Tin started at 51.891 cents per pound for January, rose to 55.622 cents in April and gradually fell to 50.951 cents in October. Cadmium and aluminum were pegged at 55.000 cents and 23.300 cents per pound respectively as in 1933. Antimony had a general upward trend from 7.198 cents per pound in January to 9.361 cents in October. Quicksilver had its low of $67.538 per flask of 76 pounds in January and a high of $75.930 in April followed by slow drop to $74.000 in October. Platinum was $38.000 per ounce Troy from January to April inclusive, $36.538 in May, $36.000 in June to September inclusive and $35.038 in October. Basic pig iron was $17.00 per long ton in the first three months, $17.48 in April and $18.00 the remaining six months.

GOLD AND SILVER

Activity in gold mining continued. Large mines increased their scale of operations. Many small mines started up. Old dumps are being retreated. Individuals worked on gold placers, and in California alone it was estimated that gold production by individuals in 1934 would be over $900,000 or double the value of 1932. New gold discoveries were made in Canada and developed rapidly so that Canadian gold production shows steady increase. The reopening of old mines, as in the United States, is expensive and slow and has not so far contributed very much to the quantity of gold production. This is well illustrated in the old Southern Appalachian gold districts where there is much activity but very little production as yet. What is true of gold in the United States and Canada is true in South Africa, Australia and in gold districts all over the world. The increased price for gold allows ore of lower grade to be mined. South Africa is mining much greater tonnages but the gold output in ounces has not increased in anywhere near the same proportion. Australia has shown a considerable increase in the amount of gold produced. World gold production for 1934 will probably be the highest in history. Gold dredging in California has shown a marked increase. A mild gold boom has started in northern Michigan. A very rich gold strike has been made at Mancos, Col. In the United States the rise in the price of gold culminated in definite establishment by Federal regulation of $35 per ounce Troy. Silver was also benefited by the price of 64.5 cents per ounce Troy paid by the U. S. Mint for all domestic production, and the currency act providing that one fourth of monetary stocks should be in silver. Silver mining, while more active, has not increased to the same extent as gold. One reason is that many mines produce both silver and lead and any increase in silver output means more lead as well and this lead coming on an already overstocked market depresses the price so that the gain from silver may be largely offset by the loss from lead. Governments seeking new sources of taxes have been quick to seize on some of the increased profits from the higher prices of gold so that the miner has not realized the full benefit therefrom.

PETROLEUM

A curious situation has developed in that the price of crude oil has risen and the price of products has continued low. This cannot continue. Federal control of production has helped the industry although it has not completely stopped the flow of "hot oil," that is, the illegal production in excess of government allowance in the East Texas field. At one time it looked as if the government control would fail but the outlook has become more hopeful and the economic situation is much improved. There is a growing belief that no new big producing fields are likely to be developed in the near future and that orderly control of production to coordinate with demands of consumption may be expected. This should result in stabilized prices, less competition and more profitable operation. It seems inevitable that over a period of years the price of petroleum products must rise as crude oil becomes more expensive to secure. Already a California well has gone to a depth of 11,377 feet and these deep new wells along with the lessened supply from old wells will increase production costs. There is a marked increase in pipe lines for transporting gasoline. Excessively high taxes on gasoline and diversion of these taxes to all sorts of general purposes instead of to building and maintenance of roads is arousing the motoring public and the move already made in two states for a maximum of two cents per gallon, including all taxes and no diversion from use on roads, is likely to spread rapidly to other states.

OTHER METALS AND MINERALS

Large stocks of base metals still overhang the market. Tin is in the best position and copper in the worst. Metal consumption rose above consumption in some months and dropped below in other months but the general trend was toward slow decrease of stocks. Copper production in the United States is running at only about 15 per cent of full capacity. The Copper Code, approved in April, promises some measure of relief for this metal. Lead is affected by silver production as previously stated. A lead code was approved in June. Zinc stocks are not as serious as those of copper and lead. Tin control is fairly well in hand. Anthracite coal has suffered still more from the competition of oil, coke and gas. The promulgation of a code for bituminous coal gave some help to that industry by raising prices.

Great possibilities of progress still exist and time will make present conditions look crude. Improved methods are increasing efficiency of recovery and use. Life of metals will be prolonged by discovery of new alloys more resistant to corrosion and wear. Lighter weight and stronger alloys will cut costs. Many new fields of use will be found for old products and also for products yet to be developed. Note a few of the many examples: The growing use of beryllium in alloys, the application of silver electrodes for killing bacteria in water, the employment of activated alumina as a moisture absorbent, plating with rhenium to resist corrosion by hydrochloric acid, and increased fields for rare metals. The deposits of rich radium ore at Great Bear Lake in Canada, near the Arctic Circle, have been augmented by new discoveries at Hottah Lake in that region.

LABOR AND WORKING CONDITIONS

Wide unemployment exists, especially in copper districts. Companies are doing all they can to provide work and give welfare aid. In spite of this, a number of strikes occurred, including the perennial outbreaks in anthracite coal, a long strike in the Butte copper district of Montana, and other disturbances in California, Manitoba and Quebec. Some increases of wages were made as in the silver-lead districts of Utah and the gold districts of California and the Butte copper miners also won a wage increase. With the bituminous coal code came an almost complete unionization of that industry. What will be the result of the centralization of labor power in the hands of a few men only the future can tell. Silicosis as an occupational disease in certain forms of mining is receiving more and more attention with enactment of laws for prevention and control and compensation of the workman.

TECHNICAL PROGRESS

Replacement of hand labor by the machine is being expedited by the necessity of reducing costs under present business conditions. Aerial surveying and mapping and aerial transport of machinery, men and products find increasing fields. Detachable bits for drills are now functioning satisfactorily and finding wider use. Gold mining in South Africa has reached a depth of 8,398 feet in the shaft of the Robinson Deep and problems of temperature and humidity are being met by installations for conditioning the air by refrigeration and dehumidifying. Hard facings on metal wearing parts of mining machinery prolong the life of machines and also restore worn parts. The point which technical progress has reached is well illustrated by the plant of the Ethyl Dow Company at Carolina Beach, N. C., which recovers 60 out of the 65 parts of bromine occurring in sea water. The daily product is 15,000 pounds of bromine, and 26,000 gallons of sea water are treated per minute. The extraction of the relatively few parts of gold per million is still only a dream but, nevertheless, a dream that may sometime come true.

ORE DRESSING AND COAL PREPARATION

More coal is subjected to cleaning every year, and the operation gains in efficiency. High spots in ore dressing developments include more efficient methods of crushing and grinding, increased knowledge of flotation theory from research, extension of the scope of flotation in the field of non-sulphide minerals, wider use of flotation in gold milling and the flotation of placer gold, portable washing plants, centralized milling plants, and the installation of a semi-commercial plant for beneficiation of Lake Superior iron ores by a reducing roast to change hematite to magnetite, followed by a magnetic separation.

GOLD AND SILVER

By Charles W. Henderson

U. S. Bureau of Mines, Department of the Interior

REVALUATION OF THE DOLLAR

New Statutory Price. — The year 1934 witnessed the fixing, for an indefinite period but continued through 1934, of the United States dollar at 59.06+ per cent of its former statutory price, which had existed since Jan. 18, 1837. On Jan. 1, 1934, the Treasury's official value of the dollar had been 60.69 cents; on Jan. 16, the Treasury reduced the price to 60 cents. The dollar's foreign price fluctuated from Jan. 1 to Jan. 15 from 64.07 cents down to 61.22 cents on Jan. 15; rose to 63.47 cents on Jan. 26, and fell to 61.01 cents on Jan. 31.

Powers Conferred by Gold Reserve Act.—On Jan. 15, although already with authority under existing law to take title by executive act of the gold bullion and coins in the possession and control of the Federal Reserve banks, the President asked Congress for ''specific enactment to vest in the United States Government title to all supplies of American-owned monetary gold, with provision for payment therefor in gold certificates,''* and though authorized by existing legislation to revalue the gold with a lower limit of permissible revaluation at 50 per cent, he asked that Congress fix the upper limit at 60 per cent. On Jan. 30, 1934, Congress passed the Gold Reserve Act of 1934, with the above-mentioned powers and other powers including that, out of the profits of the devaluation, there should be set up a fund of $2,000,000,000 for purchases and sales, at home and abroad, of gold, foreign exchange, and Government securities.

President Roosevelt's Statement.—On Jan. 31, 1934, the President issued the following statement relative to the reducton of the weight of the gold dollar:

''Acting under the powers granted by title 3 of the act approved May 12, 1933 (Thomas amendment to the Farm Relief Act), the President today issued a proclamation fixing the weight of the gold dollar at 15-5/21 grains nine tenths fine. This is 59.06 plus per cent of the former weight of 25-8/10 grains nine tenths fine, as fixed by section 1 of the act of Congress of March 4, 1900. The new gold content of the dollar became effective immediately on the signing of the proclamation by the President.

''Under the Gold Reserve Act of 1934, signed by the President Tuesday, Jan. 30, title to the entire stock of monetary gold in the United States, including the gold coin and gold bullion heretofore held by the Federal Reserve banks and the claim upon gold in the Treasury represented by gold certificates, is vested in the United States Government and the 'profit (of $2,883,800,000)' from the reduction of the gold content of the dollar, made effective by today's proclamation, accrues to the United States Treasury. Of this 'profit', two billion dollars, under the terms of the Gold Reserve Act and of today's proclamation, constitutes a stabilization fund under the direction of the Secretary of the Treasury. The balance will be covered into the general fund of the Treasury.

''Settlement for the gold coin, bullion, and certificates taken over from the Federal Reserve banks on Tuesday upon the approval of the act was made in the form of credits set up on the Treasury's books. This credit due the Federal Reserve banks is to be paid in the new form of gold certificates now in course of production by the Bureau of Engraving and Printing.

* * * * * *

''In his proclamation of today the President gives notice that he reserves the right by virtue of the authority vested in him, to alter or modify the present proclamation as the interest of the United States may seem to require. The authority by later proclamations to accomplish other revaluations of the dollar in terms of gold is contained in the Gold Reserve Act signed on Tuesday.''

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* "These gold certificates will be, as now, secured at all times dollar for dollar by gold in the Treasury—gold for each dollar of such weight and fineness as may be established from time to time."

VALUE OF GOLD PER TROY OUNCE UNDER DIFFERENT CONGRESSIONAL ACTS

(Using the $10-gold coin as a basis)

Date of law	Standard weight (grains)	Fineness (thousandths)	Fine gold content (grains)	Value per fine ounce, troy (480 grains)	Value per grain
Apr. 2, 1792	270	916.6666 +	247.5	$19.393939	$0.04040404
June 28, 1834	258	899.2248 +	232.0	20.689656	.04310345
Jan. 18, 1837	258	900.0000	232.2	20.671835	.04306632
Mar. 4, 1900	258	900.0000	232.2	20.671835	.04306632
Jan. 31, 1934	152	900.0000	137.1	35.000000	.0729166 +

Gold Imports.—The result of the Gold Reserve Act of 1934 was to bring a large importation of gold into the United States—by the end of April nearly $750,000,000, and for the year over $1,000,000,000.

Revalued Monetary Gold Stock.—The revaluation of the monetary gold stock is shown as follows: On Jan. 31, $4,333,000,000; on Feb. 7, $7,036,000,000; on Jan. 9, 1935, $8,258,001,893.81.

GOLD MINING INVESTMENT

Small Capital Inflow.—The results of the President's proclamation of this by no means inflexible or unchangeable price, following the fluctuating but rising gold price paid for newly mined gold from Aug. 8, 1933 on, were sufficiently encouraging for capital in small amounts to enter into gold mining. Some capital, afraid of other enterprises, chose gold mining as seemingly more certain than other industries, particularly those already over produced. There was at least a market for the gold.

Average Weighted Price. — Gold production in the United States (including the Philippines and Puerto Rico) in 1934 exceeded in dollars the value of the peak quantity year; namely, 4,887,604 ounces at $20.6718 per ounce, or $101,036,000 in 1915. The average weighted price for 1934 was $34.95, and the ounces produced were 3,067,389, making a total of $107,205,247. From Jan. 1 to Jan. 15, 1934, the Reconstruction Finance Corporation bought gold, both domestic and foreign, at a daily posted price which remained unchanged at $34.06 per ounce. From Jan. 16 to Jan. 31, the Treasury Department, through the Federal Reserve Bank, bought domestic gold at the unchanging price of $35.45 an ounce. From Feb. 1 to Dec. 31, the United States Mint bought both domestic and foreign gold at the fixed price of $35 an ounce, under the Gold Reserve Act of 1934, under which the President fixed the weight of the gold dollar at 15-5/21 grains nine tenths fine. Thus was born the 59.06+ cent dollar, arrived at by dividing $20.6718 by $35. Multiplying $35 by 0.5906 gives $20.6718. The average weighted price paid for domestic gold in 1934 is calculated at $34.95. The average weighted price in 1933 was calculated at $25.56.

Investment Factors.—Due to the length of time and the relatively large capital investment necessary to bring into production a mining venture of any magnitude, the investing public has been reluctant to put money into new ventures owing to the uncertainties of our monetary policy. Even so, many have no doubt considered it prudent not to invest unless investigation and examination indicate a profit at the old statutory price of $20.6718 per fine ounce, for they feel that index prices of labor and supplies will eventually catch up with the $35 price. The new capital which has gone into gold mining in 1934 has been small and has been released with hesitation.

PRICE REACTION ON GOLD MINING

Treating Lower Gold Content. — The Gold Reserve Act of 1934 has resulted in prolonging the life of developed and going profitable gold mines by allowing treatment of lower grade gold content of rock and gravel. This reaction (treating lower gold content) has been universal—in Canada, Australia, South Africa, and the United States. Only with respect to South African gold mines have stockholders been heard to urge mining only that content profitable under the $20.67 price and thus demanding the distribution of the larger dividends from the present high price.

Effect on Mining Districts. — In the United States, the high gold price has, in some instances, saved whole communities from extinction, and in other instances, but for the same reason, revived dead or nearly dead gold districts. That is, the high gold price has lifted certain gold ores out of the sub-marginal (below profit) class into a small but certain profit class. This shot of adrenalin promises continued life to such districts only as long as the medicine is fed. The results of the increased gold price for 1934 have been the keeping alive of certain communities and of greatly aiding employment.

GOLD MINE PRODUCTION IN THE UNITED STATES, BY STATES, 1934.

	1933 (fine ounces)	1934 (fine ounces)	Increase (+) or decrease (−) (fine ounces)	Per cent of change	Value	
					1933 (at $25.56 per ounce)	1934 (at $34.95 per ounce)
Western States and Alaska:						
Alaska	457,274	541,283	+84,009	18.37	$11,687,923	$18,917,841
Arizona	79,992	157,000	+77,008	96.27	2,044,596	5,487,150
California	613,579	701,000	+87,421	14.25	15,683,079	24,499,950
Colorado	242,828	317,214	+74,386	30.63	6,206,684	11,086,629
Idaho	64,592	86,600	+22,008	34.07	1,650,972	3,026,670
Montana	57,822	92,500	+34,678	59.97	1,477,930	3,232,875
Nevada	98,590	146,700	+48,110	48.80	2,519,960	5,127,165
New Mexico	26,474	25,630	−844	3.19	676,675	895,769
Oregon	20,240	32,200	+11,960	59.09	517,334	1,125,390
South Dakota	512,404	481,727	−30,677	5.99	13,097,046	16,836,359
Texas	....	368	+368	....	....	12,862
Utah	109,130	134,100	+24,970	22.88	2,789,363	4,686,795
Washington	4,563	6,900	+2,337	51.22	116,630	241,155
Wyoming	2,200	4,900	+2,700	122.73	56,232	171,255
Total	2,289,688	2,728,122	+438,434	19.15	$58,524,424	$95,347,865
Eastern States:						
Alabama	5	2,781	+2,776	55520.00	$128	$97,196
Georgia	435	900	+465	106.90	11,119	31,455
Maryland	15	....	−15	....	383	....
North Carolina	648	666	+18	2.78	16,563	23,277
Pennsylvania	247	557	+310	125.51	6,313	19,467
South Carolina	160	223	+63	39.38	4,090	7,794
Tennessee	223	531	+308	138.12	5,700	18,558
Virginia	19	529	+510	2684.21	486	18,489
Total	1,752	6,187	+4,435	253.13	$44,782	$216,236
Central States:						
Michigan	8	49	+41	512.50	$204	$1,713
Total	8	49	+41	512.50	$204	$1,713
Philippine Islands	279,535	332,974	+53,439	19.12	$7,144,915	$11,637,441
Puerto Rico	29	57	+28	96.55	741	1,992
Total	279,564	333,031	+53,467	19.13	$7,145,656	$11,639,433
GRAND TOTAL	2,571,012	3,067,389	+496,377	19.31	$65,715,066	$107,205,247

GOLD AND SILVER PRODUCTION

Ore Reserves.—Lest anyone calculate too hastily that the Gold Reserve Act of 1934 has served as a conservation act for gold and silver reserves, let him remind himself that within the 13 Western states and Alaska 62,140,835 tons of copper ore in 1929 recovered 434,986 ounces of gold and 18,020,842 ounces of silver, as compared with 8,363,586 tons yielding 108,727 ounces of gold and 5,854,510 ounces of silver in 1933. The adoption of the NRA code which went into effect on April 26, 1934 and resulted in fixing the copper price in the United States at 9 cents a pound materially helped copper production in some of the states and contributed a slightly increased gold (and silver) output from copper ores as compared with 1933 results. The vast copper ore reserves of the United States have associated with them large quantities of gold and silver which unquestionably will be made available as time justifies the production. Also consider that in 1929 zinc-lead ore amounting to 3,496,400 tons recovered 0.022 ounce gold per ton and 4.47 ounces silver per ton, as compared with 1,182,311 tons of 0.036 ounce gold per ton and 5.21 ounces silver per ton in 1933.

Methods of Determining Output.—There are two methods of determining gold and silver output in the United States: (1) the U. S. Bureau of Mines method of direct reports from producers plus receipts at smelters and mints; (2) the U. S. Bureau of the Mint method, being arrivals of refined bullion at United States mints and assay offices and at private refiners. By cooperation between the two Bureaus, credit to individual states are carefully ironed out. The combined total output of refined domestic gold as given by the Bureau of the Mint for the last 29 years shows the small excess of 0.39 per cent gold (and 0.67 per cent silver) over the total mine output of gold produced in the United States, as stated by the Bureau of Mines. For the larger states, either method continuously used gives over a period of years practically the same total. In the table on page 455, the U. S. Mint figures are used for both 1933 and 1934 for Alaska, Philip-

MINE PRODUCTION OF SILVER IN THE UNITED STATES, BY REGIONS, 1933-34, AND PER CENT INCREASE OR DECREASE, IN TERMS OF RECOVERED METAL

State or Territory	1933 (fine ounces)	1934 (fine ounces)	Increase (+) or decrease (−) (fine ounces)	Per cent of change	Value	
					1933 (at $0.35 per ounce)	1934 (at $0.646 per ounce)
Western States and Alaska:						
Alaska	155,334	160,033	+4,699	3.03	$54,367	$103,381
Arizona	2,390,363	4,150,000	+1,759,637	73.61	836.627	2,680,900
California	402,591	789,000	+386,409	95.98	140,907	509,694
Colorado	2,186,140	3,389,552	+1,203,412	55.05	765,149	2,189,651
Idaho	6,987,960	7,310,000	+322,040	4.61	2,445,786	4,722,260
Montana	2,660,700	3,950,000	+1,289,300	48.46	931,245	2,551,700
Nevada	1,148,621	2,700,000	+1,551,379	135.06	402,017	1,744,200
New Mexico	1,181,580	1,058,232	−123,348	10.44	413,553	683,618
Oregon	20,760	58,900	+38,140	183.72	7,266	38,049
South Dakota	125,417	100,376	−25,041	19.97	43,896	64,843
Texas	160	816,623	+816,463	510289.38	56	527,538
Utah	5,669,197	6,985,000	+1,315,803	23.21	1,984,219	4,512,310
Washington	18,520	40,000	+21,480	115.98	6,482	25,840
Wyoming	260	893	+633	243.46	91	577
Total	22,947,603	31,508,609	+8,561,006	37.31	$8,031,661	$20,354,561
Eastern States:						
Alabama	....	364	+364	....	....	$235
Georgia	51	46	−5	9.80	$18	30
North Carolina	180	9,837	+9,657	5365.00	63	6,355
Pennsylvania	2,197	4,004	+1,807	82.25	769	2,586
South Carolina	32	68	+36	112.50	11	44
Tennessee	28,083	61,450	+33,367	118.82	9,829	39,697
Virginia	....	78	+78	....	....	50
Total	30,543	75,847	+45,304	148.33	$10,690	$48,997
Central States:						
Illinois	1,422	....	−1,422	....	$498	....
Michigan	125,926	529	−125,397	99.58	44,074	$342
Missouri	....	136,000	+136,000	....	....	87,856
Oklahoma	....	54	+54	....	....	35
Total	127,348	136,583	+9,235	7.25	$44,572	$88,233
Philippine Islands	181,372	226,524	+45,152	24.89	$63,480	$146,335
Puerto Rico	....	11	+11	....	....	7
Total	181,372	226,535	+45,163	24.90	$63,480	$146,342
GRAND TOTAL	23,286,866	31,947,574	+8,660,708	37.19	$8,150,403	$20,638,133

pines, Puerto Rico, and Eastern United States; U. S. Bureau of Mines figures are used for both years for Central and Western states.

SILVER

Price Effect on Production. — President Roosevelt's proclamation of Dec. 21, 1933, giving 64.6464 cents per fine ounce to producers of newly mined silver as against a world market then of 43 cents with a fair assurance that such price would continue under the London Conference of 66 governments for four years from Jan. 1, 1934, almost immediately reopened those few mines in the United States which had ore reserves of which silver formed the major constituent. This price also kept certain lead-silver mines from closing down, and reopened other lead-silver and copper-silver mines, though lead and copper prices were low (and remained so). The result was a very appreciable increase in production of silver, as shown in the table on page 456.

Silver Purchase Act.—Federal legislation as regards silver during 1934 was novel and experimental. On June 19, the President approved the Silver Purchase Act of 1934, which declared it to be the policy of the United States Government to acquire silver to be added to the metallic monetary reserves until a 25-75 ratio with gold was reached. This entailed a huge silver purchase. On June 28, the President approved a Treasury order forbidding the further export of silver except under license. On Aug. 9, full nationalization, with seizure of all silver at 50.01 cents, came as a result of the world price having moved up to 50 cents an ounce.

Silver Purchases.—Handy & Harman, private metal dealers, in their annual report published in the *Wall Street Journal* of Jan. 7, 1935, say:

"Open market purchases abroad of silver by the United States Treasury in following out the terms of the Silver Purchase Act of 1934 amounted to 185,000,000 ounces, it is estimated by Handy & Harman in their 19th annual review of the silver market. Total acquisitions by the Treasury are estimated at 317,400,000 ounces for 1934, of which 21,400,000 represents newly mined domestic silver acquired by the mints in accordance with the Presidential proclamation of December 21, 1933, and 111,000,000 is metal requisitioned under the nationalization order of August 9.

"The increase in the gold reserves of the United States since May 25 has made necessary the purchase of an additional 125,000,000 ounces of silver if the 1 to 3 ratio between silver and gold in the monetary reserves is

ESTIMATES OF WORLD SILVER PRODUCTION, SUPPLIES AND CONSUMPTION*

(Millions of fine ounces)

Production:	1934	1933
United States	25.5	21.0
Mexico	75.0	69.1
Canada	16.3	15.4
South America	16.0	13.6
All other countries	48.4	45.0
Total production	181.2	164.1
Other Supplies:		
Net Chinese exports	200.0	10.9
Sales by Indian Govt. a/c Brit. war debt	....	20.0
In London	30.0	27.1
Sales by Russia	25.0	45.8
Total supplies	436.2	267.9
Consumption:		
U. S. Government acquisitions:		
Domestic production	21.4	....
Nationalized stocks	111.0	....
Open market purchases	185.0	1.0
War debt payments	....	22.7
Total U. S. Government acquisitions	317.4	23.7
Other government purchases:		
Mexico	7.2	16.0
Canada	1.7	....
Peru	1.1	....
Australia	0.6	....
Coinage:		
Hongkong	9.0	....
Cuba	7.8	....
Colombia	3.6	....
Belgium	....	7.0
Turkey	....	4.5
Other countries	0.6	....
Indian consumption	15.0	10.0
German consumption	12.4	14.5
Arts and Industries:		
In the United States and Canada	25.0	24.0
In England	13.0	8.0
Unaccounted for	21.8	160.2
Total consumption	436.2	267.9

* Handy & Harman, *Wall Street Journal*

to be attained, the review points out. On May 25, gold reserves of $7,755,847,568 necessitated just short of 2,000,000,000 ounces of silver for the 1 to 3 ratio. Deducting the 691,482,085 ounces on hand in the Treasury, gave a balance of 1,308,000,000 to be purchased. The increase in the gold reserves, however, at the end of the year to $8,230,000,000, raised the total to be acquired to 1,433,000,000. On the basis of the current gold and silver stocks, it is estimated that there remains an additional 1,120,000,000 ounces of silver to be bought.

"If this silver is to be acquired from production of new silver, the buying program would take seven to 12 years to complete, after making allowance for annual deduction of about 50,000,000 ounces for industrial consumption and currency requirements. This does not, on the other hand, make allowance for absorption by India and China, amounting under normal conditions to approximately 75% of the annual production, and it assumes that gold stocks and the legal content of the gold and silver dollar will remain unchanged."

IRON AND STEEL

By Edwin F. Cone

Editor, *Metals & Alloys*

INDUSTRIAL GAIN IN 1934

When an authentic and detailed history of the American steel industry for 1934 is written, undoubtedly a feature that will be emphasized is the gradual recovery over 1933. There has been some disappointment voiced over the extent of the recovery as measured by statistics of production which do not show a large expansion over the previous year. But the fact that there was a substantial increase in steel and pig iron production and that the rate of steel ingot output was advancing during November and December are pointed to as presaging a better year in 1935. Expansion each week in steel ingot production during the last two months of the year is unprecedented.

PIG IRON AND STEEL PRODUCTION

While the increases in both pig iron and steel production in 1934 over 1933 were not as large as the increases in 1933 over 1932, the low point of the depression in steel, the statistics, so far as obtainable, are of interest. The record for a number of years, with 1934 estimated, is as follows in gross tons:

Year	Pig Iron	Steel
1934	15,850,000	25,625,000
1933	13,213,000	22,894,000
1932	8,686.000	13,680,000
1931	18,426,000	25,946,000
1930	31,752,000	40,699,000
1929	42,614,000	56,433,000
1921	16,688,000	19,783,000
1913	30,966,000	31,301,000
1898	11,774,000	8,930,000

The estimated steel output for 1934 of 25,625,000 gross tons is close to the 1931 total; revised figures may bring last year's total above 1931. The 1932 total was down to 13,680,000 tons. Thus the improvement over two years ago is approximately 90 per cent.

The fluctuations in operations in 1934 were a feature. The first half of the year was better than the last. In the first quarter, according to an authority, operations averaged about 40 per cent of capacity, which was increased to 54 per cent during the second quarter. The rate was only 24 per cent in the third quarter with 28 per cent, the average for the last three months. Thus the average for the year was about 37 per cent. Operations fluctuated from a weekly high of 62 per cent in June to a low of 17.5 per cent in September.

STEEL EARNINGS

Because of the relatively low volume of business in 1934, the year was not a profitable one financially for the industry as a whole. But losses were not as heavy as in 1932. One authority estimates that during the first half of 1934, the industry showed a return of less than 1 per cent on its total capital investment which gain was completely cancelled by losses in the last half.

An interesting observation and comparison is that, although the industry as a whole is still in the red, several companies earned money and most companies ended 1934 with smaller deficits than was the case in several years immediately preceding. Taking the record of a group of 14 major steel companies—in 1933 only four of these reported net earnings—the combined deficit of the group for the year was almost $65,000,000, and for the first three quarters the deficit was more than $53,500,000. In 1934, at the close of the third quarter, eight of the companies showed net earnings with the deficit for the 14 reduced to about $8,200,000.

THE CODE OF FAIR PRACTICE

The Code of Fair Practice, which was established by the industry in 1933, in cooperation with the Government and under the NRA, continued to control the steel industry. The functioning of this Code is generally acknowledged to have brought definite improvement in marketing conditions. It has resulted in the elimination of cut-throat competitive methods and under-cover concessions. Nevertheless, competitive steel remains keen and aggressive but it is of a more healthy and constructive character than before the Code was adopted.

STRUCTURAL STEEL OUTPUT AND PROSPECTS

During 1934 over 1,100,000 tons of structural steel were fabricated and shipped, according to the American Institute of Steel Construction. As compared with 1933 this was an increase of approximately 20 per cent. Bookings nearly equalled shipments so that the industry starts the new year with a backlog about equal to what it was a year ago at this time. It is stated that this is the first time in four years when a definite upward trend has been in evidence. The Institute feels that prosperity is not coming back to the construction industry until at least $3,000,000,000 is spent each year for construction by someone, public or private.

As to the future and 1935, predictions are hazardous. The hope of the steel industry for the new year, according to one leading steel executive, lies in the consumers of lighter products, headed by the automobile industry where more activity is believed assured. Heavier lines of steel so far have remained dormant and any real revival depends upon the rebuilding of investment confidence. The fact that the Government has expressed confidence and faith in private enterprise is regarded as an encouraging factor. The general impression as the year starts is that the gradual recovery of 1934 will be repeated in 1935 and possibly intensified.

TECHNICAL DEVELOPMENTS

Technical developments as a result of research were many and generally up to the standard of former years. Many of these were brought out in papers and discussions at the various conventions of the leading technical societies. The large organization which has had a phenominal growth since its establishment in 1919 — the American Society for Steel Treating—changed its name during 1934 to the American Society for Metals.

Two trends of interest and importance during 1934 include the greater development and use of the low-alloy, high strength steels and the expansion in the use of both stainless steels and aluminum alloys in the streamline trains. For some years the existence and use of the low-alloy steels has been common knowledge. But in 1934 a leading steel producer brought out a new steel of this type which it pushed with vigor and success. Another company developed a similar steel and the competition is at its height. The argument is less weight in cars for railroads in particular with no sacrifice of strength with the added advantage of corrusion resistance in most cases. Undoubtedly there will be further expansion in this field.

The use of stainless steel has continued to make strides. Whether its incorporation in the streamlined train will continue is uncertain. This also holds true of the aluminum alloys. The cost of both of these materials is high. Possibly some other will be found suitable as the greater probable use of streamlining in railroad and other construction expands.

COAL AND COKE

By R. Dawson Hall

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THE BITUMINOUS CODE

A year of profitable operation in the bituminous mines has more than reconciled the bituminous coal operators to some features in the operation of the NRA codes of which they had been in doubt and trepidation, and the attitude toward that feature of the ''New Deal'' is shown by the vote of the members of the National Coal Association, Oct. 27, without dissenting voice in favor of a two-year extension of the minimum price, wage- and hour-control features of the bituminous code. They urged that some control of productive facilities be established and that the industry be specifically exempted from the prohibitions of the anti-trust acts, their operations to be administered under the supervision of an appropriate Federal board. Opposition to a 30-hr. week and to provisions giving no leeway as to hours of labor in times of seasonal demand were voiced at the meeting of the American Mining Congress in December. A year of activity on the codes has interfered with mine duties and perhaps prevented progress in methods of development, though much advance has been made, especially in coal cleaning.

AIR SEALING TO PREVENT ACID WATER

Casting around for profitable means of employing idle miners, the Civil Works Administration decided to seal air from abandoned mines to prevent the oxidation of pyrite, which oxidized and dissolved by waters entering the mines, flow out and acidifies streams and rivers. Some say that acid water confined in the mine becomes less acid, even neutral or alkaline, but others declare that all that can be hoped for is that water will leave the mine as free from acid as when entering the workings, which is justification enough for sealing. The seals used are not true dams, which would hold the water in the mine, might jeopardize other mines, existent or later to be opened, and might break and flood the countryside; instead a trap is constructed at the mine mouth so that water can escape but air cannot enter. Breaks to surface are sealed tight. At one time 1,242 men were employed in this work. The discharge of acid materially decreased but the work, no longer a CWA projects lacks much of completion.

RESEARCH

Research took heavy body blows during the year. Funds being denied to the U. S. Bureau of Mines, its research activities came almost to an end, much to the regret of the coal industry, as expressed at almost all meetings of coalmining men. A committee appointed by the American Mining Congress studied the matter with great care and made an exhaustive report, declaring lack of funds had greatly injured the effectiveness of the Federal safety work. The Anthracite Institute largely narrowed its operations toward the close of the year. Thus far, the Bituminous Coal Research, Inc., founded by the National Coal Association, has not definitely formulated its program, and the funds available are not as large as had been anticipated. Meanwhile, however, universities, colleges, state departments and manufacturers have been conducting research or causing it to be made.

COAL CLASSIFICATION

At the annual meeting of the American Society of Testing Materials, June 25-29, the Sectional Committee on Classification of Coals presented its report on that subject, dividing anthracite into three groups, bituminous coal into five, sub-bituminous coal into three, and lignite into two, based on quantities of fixed carbon in the case of anthracite and three higher bituminous coal groups and based on heat-of-combustion values for all other groups. Anthracite in all cases must be non-agglutinating when heated. Other distinctions between groups covered weathering and agglutinating quality, whereas brown coal is defined as unconsolidated coal of less than 8,300 b.t.u. per pound and the lignite group in the lignite class is consolidated coal, also of less than 8,300 b.t.u. per pound. Symbols for designating coal according to ash, softening temperature of ash and sulphur are provided, but the classification has not met with approbation by those who are looking for a basis for evaluating coal under the NRA codes. The standard was hurried through to this end. Some matters needed further study, and this will be made. If not commercial, it is at least a fundamental inquiry developing data of value.

SCREENING AND BUMP STUDIES

Screening by its action in separating large from small coal, in a degree, separates the so-called petrographic constituents of coal, vitrain and fusain being broken finer than clarain and durain, according to studies of the Illinois Geological Survey. Cleaning at various gravities also segregates these constituents, somewhat imperfectly, vitrain being the cleanest and lightest material and fusain the heaviest. Seventeen separate minerals have been found in the mineral matter of heavy- and medium-gravity coal by Pennsylvania State College, pyrite, kaolin minerals, prochlorite, muscovite, quartz, gypsum and calcite being found in most samples.

In Harlan County, Kentucky, bumps—manifestation of violence in which coal is thrown down, in this instance, by reason of the weight of superincumbent measures—have made it imperative to find some means, if possible, to circumvent their occurrence, and the State Department of Mines has appointed a committee to study the matter.

MINE OPERATION AND ECONOMICS

Conveyors. — Much progress has been made in some regions in the use of conveyors underground, because increased wages in those regions before the NRA and under its authority made such methods of operation almost mandatory. Moreover, and perhaps this is a larger reason because the thicker beds were exhausted, thinner beds had to be mined, making the use of conveyors obligatory. In one mine in the anthracite region, conveyors have been installed that bring all the coal from the working face to the breaker, the use of cars and loconotives being restricted to movement of supplies. In other mines, conveyor slopes have been provided, all the coal tributary to the slope being loaded at the face into conveyors and delivered to the slope conveyor, which carries it up to a trip of mine cars on the level road by which it is conveyed toward the breaker. Some loading machines which lift the coal from the floor of the mine and place it in cars or conveyors have been installed in anthracite mines where the coal is of moderate inclination and adequate thickness.

''Air Shooting.''—A new development is the use of compressed air for forcing down undercut coal with minimum degradation. Reported experiments cover only a few mines in Illinois and Indiana. A shell is placed in a horizontal borehole, and air is pumped into the shell by a four-stage portable compressor, and when the pressure reaches a designated limit dependent on the conditions, the air is released into the hole forcing the coal down. In the most recent development, the Airdox, the holes need not be plugged with tamped material, or ''stemming.'' A little more costly than explosives, ''air-shooting,'' as it is termed, gives a greater percentage of large coal than explosives and so far has been found to be safe.

Ventilation is receiving renewed consideration, and fans are being devised which allow the air to travel straight through them, and which give minimum resistance to its passage. It is dawning in the industry that the inefficiencies of fans sometimes cause almost as much resistance as the mine workings. Savings in fans are of paramount importance, because the fan is the only unit which works all day and every day in the year regardless of mine operation.

Mechanical Cleaning. — Cost of installation, depreciation and obsolescence are today such important items of mine economics that more and more mines are being placed on two- and three-shift operation. Mechanical preparation plants, by their large first costs, have been potent causes of this change, and the acceptability of their product has afforded them such a broadened market that such intensified operation has been found feasible. Two preparation plants are now cleaning 6- and 7-in. coal mechanically. All coal of over 4- or 4½-in. diameter has hitherto been hand-picked and not washed. Hand-picking of the larger sizes satisfies the public perhaps better than mechanical cleaning, because it is based on the same kind of visual inspection as that on which the public bases its own judgment, but most modern mechanical cleaning is based on a gravity separation and so provides a coal cleaned to pass an analytical test of purity rather than one determined by the surface appearance of the coal, which coal in some cases may have a face showing a thin flake of impurity, which in reality is backed by coal of more than standard purity, for coal tends to cleave at its impurities.

Stripping continues to progress, especially in the anthracite region where underground development has lagged. Railroad equipment is giving way to trucks, tractors and trailers for haulage of coal, cover rock and surface material. Dragline excavators are displacing shovels. They reduce the quantities of rock that have to be removed for any given tonnage of coal, but do not load as clean a product. Thus the cost of cleaning at the breaker is increased but not as greatly as the cost of mining the coal is decreased.

Labor Conditions.—In the bituminous region, labor disturbances have been conspicuously absent, and in the anthracite region they have been due to differences between the rival unions, the United Mine Workers of America and the insurgent union, the Anthracite Miners of Pennsylvania. This dispute has laid many mines idle, and the trouble is not yet composed.

COKE

''Disco.''—No progress was made in the manufacture of high-temperature coal in 1934, but, after some years of experimentation, the Pittsburgh Coal Co. definitely placed on the market a ball-shaped product known as ''Disco.'' Its manufacture is based on the Wisner or Carbocite process. Only about 70 tons daily are available until the plant is enlarged.

Char Developments. — Plant for manufacturing char from lignite, subbituminous and free-burning bituminous coal has been developed by the Heliopore Engineering Laboratories, Colorado Springs, Col. The heat for carbonization is derived from the exhaust gases of internal combustion engines, driven by the gas produced by the carbonization of the carbonaceous material.

''Carbonite.'' — A combustible called ''Carbonite'' is made from ⅜- to $^5/_{16}$-in. coal by the Radiant Fuel Corporation at West Frankfort, Ill., which has a battery of ten Knowles sole-flue ovens in which coking temperatures are held at 2,500 to 2,600 deg. Fahr. Nine gallons of tar and 8,000 cu. ft. of 500 B.t.u. gas are said to be obtained per ton of coal. The coke is crushed for the market. The plant began operations Dec. 23, 1933.

COPPER

By Arthur Notman

Mining Engineer and Geologist

PRODUCTION AND CONSUMPTION

Indications are that world consumption of copper in 1934, will approximate 68% of the record year, 1929, and will be 85% of the rate for 1925. So far as volume is concerned, this suggests strongly that world demand for the metal is well on the road to recovery. From the standpoint of cost and price, it is well to remember that the amount of metal needed is being produced more cheaply now than ever before in the history of the industry. Furthermore, were "free competition" restored, this needed amount would be produced still more cheaply. This fact precludes any reference to past average prices as a basis for future probabilities.

When, however, we divide the totals into the respective shares of the domestic, and foreign markets, now separated by a tariff wall of 4c./lb., we find an entirely different picture. Domestic consumption will apparently not exceed 38% of 1929, and 51% of 1925, while foreign consumption will reach 103% of 1929, and 116% of 1925. These differences are startling enough to command the attention of the country at large even if they have failed to make any serious impression on those directly concerned with copper.

The following estimates are based on the latest available statistics, for 1934, in general returns for the first 9 months of the year.

COPPER MARKET, 1934

(Short Tons)

	Domestic	Foreign	Total
Production...	400,000	1,070,000	1,470,000
Consumption.	420,000	1,000,000	1,420,000

	Imports	Exports
United States........	214,000	291,000

STOCKS

Owing to the fact that large stocks of refined copper are held by fabricators and not reported, the figures reported by producers and refiners mean very little. It is obvious from the figures on production and consumption that no progress has been made during the year in reducing the excessive stocks accumulated during 1930-31-32. These were estimated by the American Bureau of Metal Statistics in North and South America as 470,536 tons at the close of 1933.

CAPACITY

The present domestic capacity to produce virgin copper is in excess of 1,000,000 tons per annum, while foreign capacity is somewhat greater. In addition there is a steadily growing supply of secondary metal pressing for market. This constantly growing reservoir of metal above ground, now amounts to approximately 300 lbs. per capita in this country. Ninety per cent of this metal can be reclaimed as the structures and equipment in which it is now in use are demolished. This source might readily supply another 250,000 tons per annum to the domestic market.

Until there is a real revival of construction in this country, particularly by the public utilities supplying electric power and light, no use can be found for this great excess of capacity in this country. Much of it and many of the high cost mines are doomed to extinction. The big majority of the country's electrification is complete, and in future copper will be forced into even more strenuous competition as a construction material in competition with the other metals and their alloys. Any artificial price structure maintained to protect the less efficient producers of copper will afford these other materials their opportunity to capture the business.

Granting the relatively greater

depth of the general depression in the United States compared to that in the rest of the world, the contrast in the case of these figures for copper is so much greater, as to call for some other explanation, than merely the relative degree of depression. What special policies has this industry been pursuing, which have exacted such a penalty from its owners and employees?

CONSEQUENCES OF COMPETITION ELIMINATION

The answer is not hard to find. It has been "cooperating" instead of competing. Competition has become unfashionable. We may expect before long to have it barred from everything but the field of sports, because of its "unfairness." Foreign competition is "unfair" so we have ruled it out by tariffs. Domestic competition is unfair as declared by some 300,000 laws enacted in the past 18 months in 400 codes of "Fair Competition for Industry in the United States." However, the Copper industry anticipated all this development in 1928 and 1929 when they recognized the great principle of "Community of Interest" and therewith "stabilized" the industry at 18c. Somehow or other, the Community of Interest was upset, and the price fell to below 5c in 1932. Perhaps all they lacked was the power of the Federal Government behind them to "crack down" on the "chiselers" who, when the public did not buy their product at 18c, insisted on selling it at lower and lower prices, so that they might continue to keep their organizations employed.

With renewed hope in 1934, after months of study and negotiation, the "stabilizers" with the sanction of the Federal Government under the NRA have reestablished the "Community of Interest," and fixed the price at 9c/lb. True this is only half as high as they fixed it in 1929, but then half a loaf is better than no bread. By extrapolation we may expect the next episode of "stability" to occur some time about 1939, with the price fixed at 4½c/lb.

However, it may be that before long the futility of these attempts to outlaw competition and to repeal the law of supply and demand may become apparent even to those who are directing the industry. Perhaps their awakening may be accelerated by the friendless stockholders of those companies who by virtue of their competitive power should be producing at capacity and selling their metal in a free market, seconded by the employees of those companies, who have been forced to work part time only or not at all, in order that all units of the industry without regard to efficiency might continue to support the "Community of Interest" at the expense of the public.

In the meantime, the rest of the world has gone on even in the face of the depression increasing its annual consumption of copper, purchased in a free competitive market, while this country with resources of metal and capacity to produce it far in excess of its present requirements has lost 50% of its 1925 business because it has been unwilling to compete.

It is still true in spite of the inherent advantages of higher grade ores, in South America, Canada, Rhodesia and the Belgian Congo, that there are two of the largest domestic units which can compete in any market and have the capacity to produce all and more than the United States is now consuming. Just why they should see any advantage in continuing to operate at 20% capacity in order to "hold the umbrella" over less able competitors is very difficult to comprehend. Just why a country blessed with ample copper resources should have to pay more for their use, than countries with little or none is equally difficult to fathom. After all, competition may not be the unmitigated evil that many people now profess to believe. The writer for one, sees no logic in or hope for the attempt to eliminate the principle from human activities.

The only "community of interest" that is worth considering, is that as many people as possible should be employed throughout the nation in producing efficiently the things which the nation wants and in trading the surplus of those products for those of other countries which either cannot be produced at home or only at greater effort than abroad. That is the "community of interest" which points the path to general prosperity. There is no other route. It is more than probable that if the automobile industry had been the victim of any such delusion in regard to the evils of competition, they would now be selling one-third of the number of cars they are selling, employing half as many men, and the public would be paying three times as much for their cars.

FALLACIES IN THE NAME OF CONSERVATION

It is suggested that the so-called natural resource industries are in a different category from manufacturing and should, therefore, be "regimented" in some different and stricter manner, because the ultimate exhaustion of these natural resources is inevitable, and posterity must be protected from this impending shortage through wasteful exploitation. After all, there is nothing wasteful about permitting the nation as a whole to secure its needs cheaply. Whatever merit there may be in the argument would seem to imply that with limited supplies within her borders, a nation should give every encouragement to the exploitation and exhaustion of foreign sources before consuming her own. This, of course, means the abolition of all tariffs on such materials. Much stress is laid on petroleum as an example of wasteful production. But here we are dealing with a weakness in the basic law governing the exploitation of petroleum resources in the United States. The so-called "law of capture" requires the owners of properties adjoining producing wells, to drill offset wells so that that portion of the oil pool underlying those properties may not be drained by the original drilling, leaving those properties with no production to which they were entitled by ownership. Herein lies the chief difficulty of the petroleum industry. No such conditions exist in respect to copper or any other important mineral resource, but for reasons not hard to find, certain producers of the metals bespeak the government in the name of conservation, to permit them to conspire against the public to fix prices and control production to defeat the law of supply and demand. In other words to set up monopolies.

To fix and maintain prices, however, implies the existence of three conditions, as follows: monopoly of supply; unavailability of satisfactory substitutes, and inelastic demand. Throughout history, these conditions have never existed save momentarily with respect to any important commodity. The world has always, and will always find ways to avoid undue exactions by those seeking to establish monopolies. Nothing short of arbitrary dictatorial powers could possibly support them.

It would surely appear wiser to design an economic program in harmony with economic law rather than in conflict therewith. The probability of success for a machine designed in conflict with physical law can never be greater than zero. Similarly the probability of success for an economic program based on having more by making less can never be more than zero, whether tried by an individual, a corporation, an industry, or a nation.

PETROLEUM

By Ernest R. Lilley

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CONSUMPTION AND EXPORTS

The increase in demand for the products of the oil industry that was first felt early in the summer of 1933, continued into the winter and early spring of 1934. In the first five months, domestic production was 45,000,000 barrels in excess of that of the same period of the previous year. However, the slowing down of general business in the early summer caused a decrease in the consumption of petroleum products that brought sales down to the level of the summer of 1933. This was substantially above the average during the depths of the depression. However, producers and refiners were keenly disappointed at the failure of the anticipated continuance of the rapid rise in demand that had characterized the fall of 1932, and the winter of 1933, to materialize. Spirits were revived somewhat by improvement in general business conditions in the late fall and early winter. Demand rose above the level of the same period in the previous year but the margin was a comparatively slight one.

Exports of crude petroleum were somewhat larger than in 1933. An increase of approximately 8% in exports of refined products was also reported. This was encouraging but was not sufficient to balance the decline of the previous year. Exports of refined oils are still materially below the totals of the years previous to 1933, and the future is not especially promising. Practically every nation of the world has set up some system of quotas or import restrictions or imposed heavy import or excise taxes in efforts to obtain additional revenue or improve its foreign exchange position. Foreign marketing organizations were faced with extinction by the continuance of the trend toward the creation of state controlled monopolies. The most important development of this nature during the year was the announcement of the Japanese-dominated state of Manchukuo of its intention to create an oil monopoly. This move has been contested by the Royal Dutch-Shell and the Standard organizations, both of which had made heavy investments in the area when it was under Chinese control. As the British and the American governments gave diplomatic support to the oil companies the controversy has become one of international importance.

The improvement in general business in the United States during the first part of the year led to a general increase in domestic consumption of all of the major products of the oil industry. Similarly all were affected by the loss of momentum of the recovery drive during the summer and shared in the revival of the late fall. In general, trends in sales of the lesser products followed the same course. One exception to this should be noted. The demand for wax was consistently and substantially below that of 1933. The situation in the wax trade was made more difficult by the fact that the increasing demand for lubricants, in the production of which was is obtained as a by-product, made regulation of wax production impossible.

PRODUCTION AND IMPORTS

The tariff barrier set up in 1932 continued to restrict importation of crude and refined oils throughout 1934. Imports were practically the same as in 1933.

Domestic production in 1934 was approximately the same as in 1933 when 905,656,000 barrels of crude oil were brought to the surface. However, except as to totals, there was very little similarity in the production records of the two years. The year, 1934, contained no period of wild over-production followed by one of forced closing down of operations such as had characterized the previous year. In fact, oil was to a very large degree brought to the surface at a rate set by the Federal Oil Control Board after study of estimates of probable demand. While it is generally believed that early in October the yield of "hot oil," oil produced contrary to proration regulations, exceeded 100,000 barrels daily in East Texas; the quantity of such oil coming on the market throughout most of the year was relatively small.

Average daily production increased from approximately 2,300,000 barrels in January to over 2,600,000 barrels in June. The daily average throughout the summer was slightly above 2,500,000 barrels. During the fall, production slowly declined until in

December it was approximately the same as it had been in January.

While the daily potential was still substantially in excess of actual needs, the steady drain on reserves, the maintenance of crude oil prices, and a material improvement in the outlook for general business led to a marked increase in drilling. Approximately 18,000 wells were completed during the year, a 50% increase over 1933. The number was still, however, substantially below the average of predepression years. East Texas was the leading center of activity but work there consisted largely of drilling already proved locations and resulted in no material increase in proved reserves. Considerable exploratory drilling, postponed in previous years because of financial uncertainties, was started in 1934. Such work was especially evident in the Gulf Coast area. A number of tests in this and other states were successful in proving new pools but none of those discovered during the year appeared to be of major importance. It would seem fair to assume that the new discoveries did not add a sufficient quantity of oil to the proved reserves of the country to balance the drain on those reserves through production.

STOCKS AND PRICES

A reduction of approximately 25,000,000 barrels in the quantity of oil in storage was made during the year. Stocks of wax increased but those of all other products and of crude oil declined. The decrease in the quantity of fuel oil in storage was especially large.

The posted price for Mid Continent 36° A.P.I. gravity crude was maintained at $1.00 a barrel throughout the year. Several of the smaller purchasers attempted to reduce prices in the fall but failed to obtain support from the larger buyers. Only minor fluctuations in crude prices were reported from other fields. The contrast between this record and the violent fluctuations of 1933 was most pronounced.

In general fuel oil, kerosene, and lubricating oil prices were steady throughout the year. Prices for gasoline, natural or casinghead gasoline, and cracking stocks reflected seasonal changes in demand for gasoline and for special types of gasoline. The wholesale price of gasoline in the Mid Continent area averaged between 3 and 4 cents a gallon in the early months of the year and rose above 4 cents in the late spring. It slowly declined to about 2½ cents in October when the failure of the summer demand to reach anticipated totals, the approach of winter, and a temporary increase in the supply of gasoline from ''hot oil'' combined to undermine the market structure. This weakness in wholesale prices rapidly spread into the retail market and brought on a series of price wars that affected a large part of the country at one time or other. Strengthening of wholesale prices toward the close of the year tended to decrease the number and intensity of these wars.

TECHNICAL DEVELOPMENTS

Refiners continued to devote themselves mainly to the problem of producing high quality gasoline at low cost. High anti-knock characteristics became standard in regular grades of gasoline as well as premium grades, and refiners found themselves unable to stress the superior anti-knock qualities of their gasolines in advertising. In an attempt to gain an advantage over their competitors a number of refiners arranged to place on the market regular grade gasolines of better than ordinary volatility. This development was especially marked in the latter part of the year when a number of regular grade branded gasolines equal in volatility to the best aviation grades were marketed.

Research organizations were active in attempting to develop solvent processes for the treatment of lubricating stocks in which certain desirable properties partially destroyed in the older processes could be preserved. In several instances such processes were developed to the point where products could be obtained on a commercial scale. Interest among producers was largely concentrated on deep drilling and pumping technique and on the use of acid treatments to revive production in old wells.

GENERAL CONDITIONS

Except for never-ending discussions and debates concerning the manner, efficiency, legality, and profit of operations in the various branches of the oil industry under the National Recovery Administration and other national and state codes and regulations, 1934 was not particularly eventful. Control authorities used every available legal device to regulate production and refining and maintain a firm market. A number of suits that were expected to determine the legality of state and national government regulation of the industry were begun. Some of the most important to the industry were dropped before they reached the higher courts. Several that may prove vitally important in the future were before the Supreme Court at the close of the year. Until final opinions have been rendered in these and other cases still in the lower courts the industry cannot be expected to develop a long time policy for itself. The need for clear definition of the future of the industry, whether private business or public utility, is felt especially by producers.

This factor, together with continued uncertainty about the future of general business and thus concerning the future demands for gasoline, fuel oil, and other products of the oil industry, has tended to restrict capital expenditures to replacements and to new units that are vitally needed to meet competition and hold present markets in the immediate future. Most marketing executives have been unwilling to initiate expansion programs where heavy cash expenditures or commitments were involved. The adequacy of visible proved reserves of crude oil has tended to restrict the purchase of leases on potential oil lands and the drilling of exploratory wells.

Thus the two fields of activity that from 1927 to 1930 were calling for large amounts of additional capital demanded comparatively little in 1934. Funds invested in production and marketing properties in previous years and now converted into cash through the sale of crude oil and its products were not needed in the industry. As a result the stronger corporations were able to make material reductions in their capitalization. This was largely effected by reduction of bonded indebtedness. Such actions should increase the stability of the industry and the return on the capital remaining in it. Unfortunately such action is also an indication that, for the moment at least, the leaders of the industry expect no great expansion in the demand for its products.

ZINC

By Walter Renton Ingalls

Consulting Engineer, New York City

DOMESTIC CONDITIONS

Consumption.—An account of zinc in 1934, like copper and lead, must fall under two heads, *viz.*, the domestic position and the foreign, the two being separated by the American tariff barrier. In the domestic position the industry suffered from the low rate of consumption, which averaged about 29,000 tons per month, with no extensive changes from month to month. The low scale of buying for both agricultural and building purposes, into which zinc enters largely in the form of zinc-coated iron and steel was a drawback. In the first half of the year there was improvement in the brass business (into which zinc enters largely) and in die casting, through increased demand from the manufacturers of motor vehicles, but this was more or less offset by the contraction in general building.

Production. — Labor troubles in Montana curtailed production there in June, July and August. Owing to that there was a small reduction in stocks of spelter in the hands of smelters up to the end of July, but at the end of September they had risen again and then aggregated about 107,000 tons.

FOREIGN CONDITIONS

Production.—Outside of the United States production during the first eight months averaged about 75,000 tons per month, and there was a steady reduction in the stocks of metal in first hands up to the end of July, indicating an improving rate of consumption, which was especially noteworthy in Great Britain and Germany, but in the second half of the year they increased. The International Cartel was renewed from time to time during the year and governed the rate of metallurgical production. The control of the cartel does not, however, extend to the mines where the ore originates. There is reason to believe that there was some increase in the stock of ore held at the mills.

Construction.—The future of zinc in the foreign position is now more or less clouded by the advent of some new metallurgical plant, a great electrolytic plant having been put into operation in Germany during 1934 and a new plant in Great Britain to employ the process of continuous distilling developed by the New Jersey Zinc Co. Other new zinc plants are in process of construction or are in contemplation. This is a consequence of the spirit of nationalism, which leads every country to become self-supplying if possible.

Metallurgy. — Metallurgically the most noteworthy features of 1934 were the continued success of the method of ''flash roasting'' developed in British Columbia, and its extension to use elsewhere; the continued success of the process of continuous distilling developed by the New Jersey Zinc Co. and its introduction into Great Britain; the success of the process of zinc refining, also developed by the New Jersey Zinc Co. and its introduction into Great Britain and Germany. Zinc of 99.99%, and upward, is now produced both electrolytically and pyrometallurgically, and is in strong demand, especially for the production of die castings.

Prices.—Although during 1934 the prices for both zinc and lead were low, many of the great mines were profitable; especially those of Newfoundland, Broken Hill, British Columbia, Burma and Yugoslavia. Conditions in Silesia (Polish and German) were not so favorable. The price for zinc was rather steady around 4⅜c. St. Louis, until September when it slid off and fell to 3.80 in October. At London it was £14½ to £15 during the first half of the year, declining to £12½ in the third quarter.

LEAD

BY ALLISON BUTTS

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GENERAL

The decline in activity in the lead industry which had continued since 1930 was arrested in 1933, and a pronounced upturn was recorded in 1934. Two years ago the level of current production reached the lowest figures since 1899, and in July, 1932, the price touched bottom at 2.75 cents per pound, almost duplicating the previous low recorded in 1896. The recovery beginning in the middle of 1933 brought the total production for that year slightly above the total for 1932; the 1934 production shows a large increase over 1933, estimated at this writing to have been about 35 per cent. Deliveries of refined lead by producers in the United States approximated 390,000 short tons for 1934. Stocks of lead in the hands of producers increased from 203,000 tons Jan. 1 to about 230,000 tons at the end of the year.

CONSUMPTION AND PRICES

Consumption of lead during the year did not quite come up to expectations, and the resulting increase of stocks had its effect on the market. The total increase in stocks was small, but was in contrast to a marked lowering of stocks in the copper industry. The price of lead declined slowly but rather steadily throughout the year after May, until December, when an upturn in business activity brought a rise in lead.

The year opened with the price at 4 cents per pound, New York, and this rose to 4.18 in April. The subsequent decline reached 3.57 cents for the November average. For the year, the average price was 3.86 cents, almost exactly the same as the figure for 1933. Fluctuations of the price during 1934 have been on the whole within narrow limits. The price of lead continued the condition of last year in being lower than that of zinc. By the end of the year, however, the difference was very small.

CAPITAL INVESTMENT AND PRODUCTION COST

The Mineral Division of the Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce, has prepared a series of tables dealing with capital investment, dividends, and costs in the lead, copper, and zinc industries. These were presented in a series of articles in the *Engineering and Mining Journal* by H. D. Keiser. Based on the amount of capital invested in twelve principal lead companies producing a little over half of the United States lead production in 1929, the fixed capital investment was shown to average 23.6 cents per pound of lead produced in that year, with an additional 2.6 cents of working capital, a total investment of 26.2 cents per pound. ''Fixed investment'' includes that in mine development, plant, and equipment. Investment figured on the basis of value of total assets minus current assets in 1929 was much higher. The total capital investment in the 12 lead companies was $216,000,000.

The average cost of producing a pound of lead by the 12 companies over the period 1922-1932 was approximated by subtracting the total net earnings per pound of lead produced during the period from the weighted average market price per pound of lead produced. The average selling price per pound was 6.69 cents, the net earnings per pound 2.25 cents, leaving 4.44 cents as the cost per pound. The average cost of production may also be estimated by subtracting total payments of dividends and bond interest from the amount received for lead sold. This method yielded a figure of 5 cents per pound for the mining companies.

The range of average cost over the period varied among the twelve companies (figured by the first method, and excluding one company which operated at a deficit) between 3.3 and 6.8 cents per pound. The net earnings in most cases were figured after taking depreciation and depletion into account. Comparative figures are 9.60 cents for the cost of producing a pound of copper and 1.96 cents for producing a pound of zinc, obtained in the same way as the figure of 5 cents for lead.

LEAD REFINING

An investigation of the chemistry of the Harris process has been made by Neumann and Knoblich (*Metall und Erz,* March, 1934, 121-132). It was found that whereas arsenic reacts readily with NaOH, admixture of a small amount of $NaNO_3$ with the NaOH is required to take up antimony and tin. The solubility of lead is very small compared with the other three, and the impurities react in the order indicated with a sharp division as to time. The reactions are exothermic and so rapid that it is necessary to limit the amount of $NaNO_3$ to a very small amount in order to control the temperature and cause a separation in order of solution.

At the recently built refinery of the U. S. Metals Refining Co., Carteret, N. J., which is operating entirely on secondary material, the final dezinking of market lead is being accomplished by a simple treatment with NaOH in a 120-ton kettle of the same type as the desilverizing kettles. The caustic dross is removed by hand skimming; after a quantity has accumulated, it is treated in the blast furnace in a special run. Progress at this plant is described by R. P. E. Hermsdorf in *Mining and Metallurgy*, December, 1934.

REMOVAL OF ARSENIC IN ROASTING

Arsenic in the lead blast furnace divides between the fume, speiss, and bullion. It must be removed from each of these products in retreatment, and as most of it goes back to the blast furnace again, an expensive and troublesome circulating load is established. Hence the removal of arsenic in roasting before the material ever reaches the blast furnace is much more of an economy than may be at first apparent. Moreover, treatment of the roaster fumes affords the best method of separation and recovery of As_2O_3 for the market when this is desired. The conditions for most efficient elimination of arsenic in roasting have been studied by Oldright, Brighton, and Wilkes at the Utah Experiment Station, Salt Lake City (*Eng. Mining J.*, August, 1934). They find that arsenic in the form of As_2O_3 or As_2S_3 is readily driven off in roasting, but arsenates are hard to remove. In general, the temperature should be kept low in roasting to prevent formation of arsenates. But if arsenates are already present, they may be broken down and the arsenic volatilized from them by using a higher temperature with addition of pyrite or coke; this statement, however, does not apply to calcium arsenate which is more stable and evidently accounts for most of the arsenic retained after roasting. Conditions for removal of arsenic are better in the Wedge type of roaster than in the Dwight-Lloyd machine. $PbSO_4$, which constitutes 80 to 90 per cent of the lead in fume, does not form lead arsenate with As_2O_3, but PbO does. However, As_2O_3 is easily volatilized from lead arsenate in the presence of excess coke or sulphur. Highly oxidizing conditions and a basic charge favor retention of arsenic as arsenates.

LEAD AND LEAD ALLOYS FOR STRUCTURAL WORK

The lead roof on the Pantheon at Rome has been in service for 1,800 years. Lead roofing was also in ancient Babylon (*Sheet Metal Worker*, January, 1934). This sheet lead was cast in flat sand molds. Additions of small amounts of other elements are now sometimes made to provide greater mechanical strength and resistance to fatigue in lead sheet and pipe. Two new alloys recommended for this purpose are one of 99.25 Pb, 0.25 Cd, and 0.50 Sb, and one of 98.25 Pb, 0.25 Cd, and 1.50 Sn. The latter is said to be especially suitable for roofing sheets.

Great interest is being exhibited in the new tellurium-lead sheet in which less than 0.1 per cent Te is used, giving, besides increased strength and fatigue resistance, a superior resistance to corrosion by acids under many conditions and better working qualities. Tellurium raises the recrystallization temperature of lead and prevents grain growth under ordinary conditions. One test reported showed an increase in strength after overstraining, 12.5 per cent in tension amounting to 21 per cent after 6 months, whereas pure lead showed a 12 per cent loss in strength under the same conditions. Lead containing 0.02 to 0.085 per cent Te showed greater resistance to boiling concentrated sulphuric acid than did antimonial lead.

Leland E. Grant in *Metals and Alloys* (August and September, 1934), has summarized the existing information on bearing metals of lead hardened with calcium, barium, strontium, sodium, potassium, or lithium, the alloying element being usually introduced by electrolysis of fused salt over a cathode of molten lead. Four such alloys are in service, one of which contains some tin and another some copper. They are being used in railroad and other bearings, though original claims made for them were too optimistic. Loss of the alloying elements in remelting is one disadvantage. They are valuable for their high strength, hardness, and melting point, with low friction coefficient, but seem best adapted to service where an alloy intermediate in properties between tin- and lead-base alloys is needed.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Assn. of Petroleum Geologists, Box 1852, Tulsa, Okla.

American Gas Assn., 420 Lexington Ave., New York City.

American Institute of Mining & Metallurgical Engineering, 29 W. 39th Street, New York City.

American Iron and Steel Institute, 350 Fifth Ave., New York City.

American Mining Congress, 841 Munsey Bldg., Washington, D. C.

American Petroleum Institute, 250 Park Avenue, New York City.

American Zinc Institute, 60 E. 42nd Street, New York City.

DIVISION XIII

MANUFACTURES AND TRANSPORTATION

CONDITIONS IN MANUFACTURING

By L. Seth Schnitman

Chief Statistician, F. W. Dodge Corporation

GENERAL

The economic world was still waiting for the sunrise as the year, 1934, drew to a close. High hopes of fair weather prophets as expressed at the 1933 year-end thus once again had been dashed rather unceremoniously. There was no lasting rainbow in the fifth year of depression; perhaps flood rains were yet to come. As 1934 became a memory, unemployment still plagued a people whose remarkable patience deserved to be rewarded with the promised benefits of the New Deal.

In December, 1934, fewer persons were gainfully employed by private industry than in December, 1933. More people were on public relief in one form or another than ever before; perhaps such was their will but this is hard to believe. And yet there can be no denying that relief payments of every description largely accounted for the otherwise unexplainable surge in Christmas trade.

During the year governmental excursions into business and industry were undertaken in earnest and with renewed vigor—from mattress manufacture to railroading, from the unenviable position of mortgagee to the questionable virtue of being a beneficent landlord, from a producer of electric power to a purveyor of appliances. And the end was not in sight. Naturally such embarkation into the provinces previously cherished by private business could not have taken place without some outward evidences of the growing conflict between government and business.

Discontent with this trend toward socialization was on the increase; the soil had been amply fertilized during the year. In fact, of all the years of the depression none so fanned the emotions into near flames as the politico-economic developments of 1934. Such is the heritage, too, for 1935. Expression to this struggle was partially afforded by such divers combatants as the American Liberty League, the National Union for Social Justice, the Committee for the Nation, the Committee for America Self-Contained, the American Legion. The battle lines—some weak, some powerful—were drawn tightly. Congressional investigations into profits and methods of munitions manufacturers added oil to the fire. Additional investigations, directed chiefly at the power and communications companies and probably the life insurance companies, promise to keep the pot of public indignation at the boiling point with the result that 1935 will likely experience a wide open struggle for place under the economic sun now decidedly in political eclipse.

FACTORS IN INDUSTRIAL ACTIVITY

Despite the harshness of the clash of counter forces, many of them new to this generation, 1934 exhibited some further slight improvement in industrial activity. Taking the year as a whole the Federal Reserve Board index of industrial production, including both manufacturing and mining, averaged 78 per cent of the 1923-25 basing point of 100. For the year 1933 this index was 76. Thus the gain in industrial output between the two years was less than 3 per cent. During 1933 the monthly indexes, adjusted for seasonal variations, fluctuated between a low of 60 for March to 100 for July; during 1934 the indexes fluctuated somewhat more narrowly from a low of 71 for September to 86 for May. 1933 ended with industrial activity, after seasonal adjustment, higher by 15 per cent than when it began; 1934 closed about 4 per cent below the level at which it opened, and the index for December, 1934 barely equaled that for December, 1933. Behind these phenomena are a myriad of causes but overshadowing them all was the NRA in all of its ramifications from price-fixing to labor problems under Section 7A, from compliance to strikes, both real and threatened.

PIG IRON AND STEEL PRODUCTION

Pig iron output, the one-time bellweather of industrial indexes, barely exceeded 16,000,000 tons in 1934. While this was a gain of more than 20 per cent over the volume produced in 1933, it was only 40 per cent of the total output reported in 1929. May, was the month of peak production in 1934; in 1933, the peak month was August. The 1934 peak was greater by 11 per cent than the 1933 peak. September was the month of lowest production in 1934, while in 1933, the lowest production occurred in March which was only 60 per cent of the lowest volume reported for 1934. As the year, 1934, closed production schedules of blast furnaces were somewhat lower than at the end of 1933.

The production of steel ingots during 1934 approximated 25,000,000 tons; this was a gain of roughly 2,000,000 tons or something less than 10 per cent as compared with the year, 1933, and almost twice the total shown for 1932, the depression low point. Throughout the first six months of 1934, steel ingot output exceeded the totals for the corresponding months of 1933, attaining during that period a volume that was somewhat reminiscent of the days before the depression. This hectic activity was largely a phenomenon of the times. It grew not entirely out of fundamental betterment in industry but as much from attempts to offset labor troubles, threatened and real, that characterized not only the steel industry but most others. May was the peak production month; in 1933, this distinction was not reached until July while the 1934 peak exceeded the 1933 peak by almost 5 per cent.

The important thing to note is that steel production for the final half of 1934, failed to equal the total for the corresponding period of 1933, by almost 40 per cent. This was more than a measure of industrial recession; indeed it was a rough yardstick of the effects of the hectic production of the previous six months, much of which was for inventory account. This piling up of excess stocks in effect was a hedge against shutdowns which failed to materialize but which were expected to arise from disputes with labor under the provisions of the code. Here was a striking example of one effect of the operation of the NRA Codes and the jittery results that they produced within only one segment of our economy. The year, 1935, has much to expect in the way of delayed attack on labor problems within the steel industry which should have been met squarely in 1934.

AUTOMOBILE PRODUCTION

The 1934 production of malleable castings, products largely consumed in the manufacture of automobiles showed a gain of more than 35 per cent over the output of the preceding year. Automobile production itself showed, in its 1934 volume of about 2,700,000 passenger cars and trucks, a gain over 1933 of approximately 34 per cent. Then, too, the 1934 production total was about twice the total for 1932, the low point of the depression. The characteristic optimism of this industry blossomed out at the

1934 year-end with an estimate of 3,500,000 units for 1935 but perhaps this is pardonable when one considers that of all the really important heavy industries, automobiles alone were able to turn in a 1934-production-total substantially in excess of the 1931 volume, an accomplishment which for many industries seems yet some distance off. New orders received by machine tool builders during 1934 averaged less than 50 per cent of the volume reported in 1926, but even at that they were somewhat better than in 1933.

The automobile tire industry during 1934, gave a good account of itself so far as production was concerned. During the year upwards of 45,000,000 pneumatic casings were produced, a gain of almost 9,000,000 over 1933, or about 20 per cent. Manufacturers' stocks of casings at the end of the year were somewhat larger than inventories at the 1933 year-end which condition was probably justified by the optimistic production schedules of automobile manufacturers as 1934 became history. Although the world stocks of crude rubber were higher as the year closed the price of rubber was more than 50 per cent above that which prevailed in December, 1933. The price rise was due not only to a natural reaction from the unwarrantedly low levels to which the price of crude had been driven by the forces of deflation but as much to a restrictive agreement on production that was finally effected in 1934.

TIN AND ZINC

Tin deliveries to domestic consuming establishments showed a loss of almost 15,000 tons as between 1934 and 1933, or a loss of approximately 25 per cent. Tin imports dropped some 40 per cent between the two years; at the same time the world visible supply of tin at the close of 1934 was only about 70 per cent of what it was at the previous year-end. And the price of the metal reflected, as it naturally would, this so-called strong statistical position.

The output of zinc at primary plants showed a gain of approximately 10 per cent in 1934, when contrasted with the corresponding total for 1933. As the year closed refinery stocks of zinc were heavier than a year earlier. And the price of zinc reflected this adverse inventory comparison.

COAL AND PETROLEUM

Production schedules at coal mines were speeded materially in 1934. Anthracite production was expanded by about 15 per cent while bituminous coal output increased over the 1933 volume by somewhat less than 15 per cent. For the first half of the year the gains were pronounced in both bituminous and anthracite; in fact, but for these important early gains, the year's totals would have barely equaled the 1933 levels.

Petroleum production barely exceeded the total reported for 1933; likewise inventories of crude petroleum were not materially different from those which prevailed a year earlier. In this industry, too, there were some justifiable misgivings as to the ultimate results of the NRA code. The production of refinery products—gasoline, kerosene, and lubricating oils—likewise was not materially different than in 1933, although for the first half of 1934, production schedules were much higher than in the first half of 1933.

ELECTRIC POWER

Electric power production gained rather substantially in 1934 particularly as a result of relatively favorable manufacturing conditions in the first half of the year. For the third quarter practically no change was shown from the corresponding period of 1933 in the face of materially lower general industrial activity but for the final three months of the year, a sizable gain over the total output for the same months of 1933, was shown.

SHOES AND FURNITURE

The industries catering to the consumer masses more directly, in the large, operated on generally heavier production schedules during the first half of 1934, than in the like period of 1933. For the final half of the year gains, where they occurred over the 1933 totals, were relatively unimportant. Thus shoe production ended the year, 1934, with a total barely larger than the 350,000,000 pair total reported for 1933. The household furniture industry operated on lower volume than in 1933; there were only four months during 1934, when operations exceeded the corresponding volumes for the months of 1933.

TOBACCO PRODUCTS

Tax paid withdrawals of cigarettes, indicative of consumption, exceeded the 1933 volume by 10 billion cigarettes or by about 9 per cent. This aggregate gain was made without a monthly total of as large size as that recorded for May, 1933, the peak month for that year. Cigar consumption in 1934 also exceeded the total shown for 1933; this improvement was probably somewhat induced by the more aggressive merchandising policies of manufacturers in lowering their prices.

FOOD PRODUCTS

Meltings of sugar at eight domestic refinery points finally managed to exceed by a small amount the total in 1933, although at mid-1934 meltings were about 8 per cent behind the comparable half-year total of 1933. Prices for sugar advanced impressively toward the close of 1934. Imports of coffee were about as large as in 1933, but tea imports dropped sizably. Candy sales by domestic manufacturers exceeded the 1933 volume by something more than 10 per cent. Shipments of canned salmon by canners exceeded the total for 1933 by a small margin.

Wheat flour production during 1934, exceeded the volume for 1933, by less than 5 per cent. The factory output of butter was lower than in 1933; storage holdings of creamery butter at the end of 1934, were below those of a year earlier while the prices were measurably higher. Factory cheese production in 1934 increased over the 1933 volume.

LEATHER PRODUCTS

The output of inspected slaughter was on about the level of 1933. Prices for cattle and hogs as well as of their products were generally higher than in 1933. Leather production was probably below the volume of 1933 although at mid-1934 the output total for all classes of leather was substantially larger than in the corresponding six months of 1933.

COTTON, SILK AND WOOL

Cotton consumption in 1934, fell below the volume reported for 1933 by more than 10 per cent. This loss has been excused on the grounds of the NRA order of a 25 per cent curtailment in operation during the late spring months and the consequent textile strike which gripped the industry in the summer but it is doubtful whether the year's result would have been materially different even should the costly strike and its terrorism have been avoided, for in the last analysis productive effort proceeds from the prospects for sales at a profit. Thanks to the Bankhead Cotton Restriction Act and the more natural forces of a destructive drought the cotton crop for 1934 was below 10,000,000 bales, a decline of more than 3,000,000 bales from the previous year. As a seemingly natural result raw cotton prices advanced rather sharply so that by the close of the year they were more than 20 per cent above the level in December, 1933.

Silk consumption in 1934, failed to reach the level of the previous year by about 5 per cent. Prices of raw silk weakened measurably during the year while silk goods prices naturally reflected the softness in the prices of the raw fibers. Wool consumption during the year fell below the 1933 volume by almost 30 per cent; of all the textile fibers raw wool was the hardest hit while prices seemed to reflect this plight quite accurately.

FACTORY EMPLOYMENT

Factory employment during 1934, fluctuated between a low of 73.3 for January to a high of 82.4 for May, relative to the monthly average for the three year period, 1923-25, as 100. At the year-end employment in manufacturing plants was more than 25 per cent below the average and slightly below the level which prevailed in December, 1933. Employment in the chemical and related industries was at about the level of a year earlier and for the year as a whole was some eight per cent higher than the average reported in 1923-25; this situation was largely due to the spectacular growth in rayon manufacture. For the food and related industries factory employment in December was appreciably higher than in the corresponding month of 1933; averaged for the year, employment in these industries was almost 10 per cent above the level of 1923-25. Factory employment in the iron, steel, and related industries during 1934, averaged less than 70 per cent of the total employed in the base-period.

The leather and allied industries gave employment to somewhat more hands than in December, 1933; while the lumber and wood-consuming industries at the end of 1934 employed only 50 per cent of the total shown for the years 1923-25. All other major industrial classifications showed smaller factory employment during 1934 than in the base period; of these only machinery plants, paper and printing establishments, tobacco factories, transportation equipment makers (inclusive of automotive plants) probably showed larger employment in December than in the corresponding month of 1933.

LABOR CONDITIONS

Labor disturbances of almost every shade and description seriously afflicted the economy during 1934; some were settled temporarily by mediation under the machinery set up by President Roosevelt. More troubles seem to loom for 1935. Nor can these, if they occur, be said to be symptomatic of industrial recovery. It is as much a symptom of an array of artificial influences which never before have had to be met by American industry.

Factory payrolls were higher during 1934 than in 1933 by about 27 per cent. Without exception all major industrial classifications participated in this general improvement in factory payrolls. Averaged for the year, 1934, the cost of living was something more than 6 per cent higher than the 1933 average while as the year ended this item was somewhat less than 5 per cent higher than in December, 1933. For wholesale prices the December 1934 level was about 7 per cent higher than a year earlier.

DIVIDEND PAYMENTS

Dividend payments to holders of industrial securities and, for that matter, of securities in general were substantially higher in 1934 than in 1933. For industrial enterprises alone the gain in cash dividend disbursements between the two years approximated 10 per cent. Profits of industrial corporations during 1934, probably were less than 15 per cent larger than in 1933; whatever aggregate gain was shown for the year doubtless occurred in the first half of the year since it was more than probable that for the final six months of 1934 profits were substantially below the level reported in the corresponding period of 1933.

FOREIGN TRADE

Exports of manufactures and semimanufactures, exclusive of food products, were more than 40 per cent larger in dollar volume during 1934, than in 1933; the gain practically offset the effect of the decline in the American dollar in terms of gold. Exports of all classes of goods, both crude and manufactured, were materially larger in value than the total volume of imports. This is just further evidence as to the practical difficulties in the way of any important nearby improvement in foreign trade so long as present tariff and debt barriers exist and international monetary uncertainties obtain. Of course America may once again, in search of markets, throw caution to the winds and provide international long term credits for the settlement of current trade imbalances.

TRANSPORTATION

Improvement in railroad freight traffic occurred during the initial half of 1934, as contrasted with the like period of 1933, of sufficient size to counteract losses in the final half and to leave a net gain in carloadings as between the fall year, 1934, and 1933, of about 7 per cent. Much more ground must be regained by this sick and retrogressive industry before any appreciable improvement in railroad purchases can be logically expected, unless of course government may finance such purchases.

The airplane industry which some years ago was heralded as the next new industrial infant to give our economy the one big boost it has been awaiting again failed to make good on this ground. In 1934, the production of commercial planes for domestic use was greater than in 1933, but the aggregate volume was below 1,000 units. Perhaps we must yet wait for a coordinated and rejuvenated construction industry to provide the impetus for recovery many are still seeking in far off fields.

CONSTRUCTION

Thanks to the public works program the construction industry in 1934, managed to show an increase in contracts of about 24 per cent when compared with the depression low of 1933. Under ordinary circumstances a relative gain of the magnitude which occurred between these two years might have a favorable interpretation. In this instance such was not truly the case. The improvement started from such a low level as to be virtually meaningless—from a lower level of contracts in fact than has been witnessed in any previous year of the twentieth century. In spite of a gain of roughly 24 per cent over the previous year's volume the 1934 contract total was only half as great as that recorded in 1931, the third full year of depression in the construction industries, for it should be recalled that for construction the depression began in 1928, not in 1929.

The really significant thing about the 1934 record is to be found in the fact that the entire gain over 1933 is directly traceable to the effects of the PWA program *i.e.*, to publicly-financed construction projects. Privately-financed projects for the year barely equaled the low ebb total for this class of work recorded for 1933. From this record it would appear that the pump-priming theory of public works construction has suffered a sizable loss in prestige.

Specifically the contract total—public and private, new and alteration—for the 37 eastern states approximated $1,550,000,000 for the year 1934. For 1933, F. W. Dodge Corporation records show a contract volume of $1,255,000,000. For 1931, the volume was $3,093,000,000 while in 1928, the peak year, the contract total reached the astronomical figure of $6,628,000,000.

There is perhaps need for spending. True, too, the conventional wells for financing private construction are still pretty dry. If not, they are rather justifiably timid, in the face of the glaring disparities between rental incomes, real estate values, and construction costs. Though these conditions be true, of themselves they do not constitute a license to government to spend without regard to the ultimate consequences. It may be far better to employ idle hands on new construction, as a matter of governmental policy, than to give direct relief to millions of our people. The question is wide open and the solution of this problem will form the year's most outstanding quest.

STATISTICS OF MANUFACTURES

By LeVerne Beales

Chief Statistician for Manufactures, U. S. Bureau of the Census

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BIENNIAL INDUSTRIAL CENSUS

Check in Downward Trend. — The downward trend in manufacturing activity in the United States, which began in the fall of 1929, came to an end in the spring of 1933, since which time the movement has been, in general, upward, with a recession in the fall of 1933, extending into the early winter of 1933-1934, and another in the summer of 1934. The Biennial Census records the monthly fluctuations in industrial activity, as measured by wage-earner employment, for all the important manufacturing establishments and for many of the comparatively unimportant ones, but some of the smaller establishments were canvassed by means of a schedule which provided for reporting wage-earner employment for four months only—March, June, September, and December. The returns for those establishments which reported for the twelve months of 1933, showed the year's minimum to have been reached in March and recorded an uninterrupted increase to the maximum in September, followed by a decrease to December. Fortunately the total employment in all establishments, both large and small, is recorded for the minimum and maximum months and for December. The per cent of increase from March to September, was 35.8; the per cent of decrease from September to December was 7.7, and the December figure exceeds the March figure by 25.4 per cent.

WAGE EARNER EMPLOYMENT, BY QUARTERS, FOR INDUSTRY GROUPS: 1933

	March	June	September	December
Total, all groups	5,147,190	5,970,649	6,991,530	6,456,105
1. Food and kindred products	538,116	636,468	872,066	695,007
2. Textiles and their products	1,284,751	1,514,594	1,637,317	1,483,470
3. Forest products	368,217	457,677	536,360	480,474
4. Paper and allied products	174,568	187,060	222,971	214,326
5. Printing, publishing, and allied industries	255,132	256,998	271,452	281,037
6. Chemicals and allied products	211,471	218,092	269,728	265,803
7. Products of petroleum and coal	103,182	105,052	118,877	121,084
8. Rubber products	84,904	103,364	127,335	118,648
9. Leather and its manufactures	266,555	285,247	306,618	269,791
10. Stone, clay, and glass products	139,927	178,275	202,493	186,197
11. Iron and steel and their products, not including machinery	427,398	541,057	669,065	625,707
12. Nonferrous metals and their products	152,738	180,633	223,831	211,083
13. Machinery, not including transportation equipment	431,212	510,888	633,692	633,793
14. Transportation equipment	247,865	307,582	353,541	344,668
15. Railroad repair shops	232,967	231,318	252,889	248,082
16. Miscellaneous industries	228,187	256,344	293,295	276,935

Factory Employment Gain. — Although in normal years the employment trend in manufacturing is upward from the beginning of the year until September, the increase in 1933, was much more pronounced than in a normal year. The biennial census record necessarily ends with December, 1933; but the monthly index of wage-earner employment prepared by the Bureau of Labor Statistics, Department of Labor, shows an upward movement from 73.3 (based on the average for 1923-1925, expressed as 100) in January to 82.4 in May, followed by fluctuations during the summer and fall. The November index—the latest available at the time this article was written—was 76.8. Comparing the first eleven months of 1934, with the corresponding period of 1933, an increase of 15 per cent is indicated. On the assumption that this is a fair approximation of the increase for the year as a whole, factory employment in 1934, expressed as an average for the year, reached a total of nearly 7,000,000.

Biennial Period Comparison.—Declines in wage-earner employment and in production were much less pronounced during the biennial period 1931-1933, than during the similar period immediately preceding. The decrease in wage-earner employment in 1933, as compared with 1931 amounted to only 7.2 per cent, whereas a drop of 26.2 per cent from the peak year 1929 had been recorded for 1931. For "value added by manufacture" (value created by manufacturing processes; calculated by subtracting cost of materials, fuel, etc., from value of products) the rate of decrease for the later period was 6.9 per cent as against 37.7 per cent for the earlier one. These percentages must not, however, be taken as measuring exactly the rates of decline in work done and in amount of output. The decrease in wage-earner employment, as reported to the Bureau of the Census, represents merely the falling off in the number of factory workers who had some amount of employment in the respective years, either on full time or on part time, and since the proportion of part-time employment undoubtedly increased from 1929 to 1931, and again from 1931 to 1933, it is practically certain that the amount of actual work done (number of man-hours worked) decreased during each two-year period to a greater extent than that indicated by the percentages given. On the other hand, the decreases in value added by manufacture (which are similar to those in gross value of products) overstate the decline in production, since these decreases are due in part to the general lowering of prices. For the period from 1929 to 1931, the estimated decrease in quantity of production was 27.9 per cent, but no corresponding estimate has yet been made for 1931-1933.

SUMMARY FOR MANUFACTURING, PRINTING AND PUBLISHING INDUSTRIES, 1929-1933

	1933	1931	1929	Per cent of decrease	
				1931-1933	1929-1931
Number of establishments	141,776	174,255	209,862	—18.6	—17.0
Proprietors and firm members	72,415	[1]	132,725	......	....
Salaried employees (not including officers of corporations)	802,474	[1]	1,353,908	......	......
Wage earners (average for the year)[2]	6,055,735	6,506,701	8,821,757	—6.9	—26.2
	Thousands of dollars				
Salaries	1,356,533	[1]	3,581,918	......	......
Wages	5,261,576	7,173,232	11,607,287	—26.6	—38.2
Cost of materials, containers, fuel, and purchased electric energy[3]	16,748,439	21,258,733	38,177,900	—21.2	—44.3
Value of products[3]	31,358,840	41,038,402	69,960,910	—23.6	—41.3
Value added by manufacture[4]	14,610,401	19,779,669	31,783,010	—26.1	—37.8

[1] No data.

[2] Average of numbers reported for the several months of the year.

[3] Includes duplication due to use of products of some establishments as materials for others. See explanation below, headed "Duplication in Aggregate Cost of Materials and Value of Products."

[4] Value created by manufacturing processes; calculated by deducting cost of materials, fuel, etc., from value of products.

DECREASE IN ESTABLISHMENTS AND IN WAGE EARNERS

In making use of the figures for "number of establishments," the effect of the $5,000 minimum limit must be taken into consideration. The Manufactures Census statistics refer only to establishments reporting products valued at $5,000 or more. During a period in which industrial activity is declining the production value for many small establishments drops below the $5,000 limit, with the result that these establishments, although active in two successive census years, are counted only in the earlier census. Thus the indicated decrease overstates the true decrease. The effect on the other statistical items—number of employees and their compensation, value of products, etc.—is, however, negligible, since these very small establishments would in any event account only for a minor fraction of one per cent of the aggregate employment and the aggregate production in manufacturing industries.

Furthermore, as the result of a variety of causes over which the Census Bureau had no control, the coverage for 1933, was not quite complete for some industries. Care was taken, however, to account for all the important establishments, and therefore the incompleteness of the coverage had no serious effect on the statistics, except to exaggerate somewhat the decrease in the number of establishments.

The indicated decrease in the number of wage earners employed, also requires explanation. As pointed out above, the proportion of part-time employment undoubtedly increased from 1929 to 1931 and from 1931 to 1933. If it were possible to obtain, from all manufacturers, reliable data on the actual number of man-hours worked, a true and accurate measure of the decrease in employment would be available, but many manufacturers do not keep their records in such form as to enable them to compile reliable man-hour data. It is impracticable, therefore, to make any distinction, for census purposes, between part-time workers and full-time workers. The differences between the rates of decrease in number of wage earners and in amount of wages paid must not, therefore, be used as a basis for calculating the decline in hourly wage rates.

RATES OF DECREASE, 1931-1933 AND 1929-1931, FOR INDUSTRY GROUPS

	Per cent of decrease					
	Number of wage earners		Cost of materials, fuel, etc.		Value of products	
	1931–1933	1929–1931	1931–1933	1929–1931	1931–1933	1929–1931
1. Food and kindred products	4.9	—13.6	—20.8	—36.0	—17.0	—31.4
2. Textiles and their products	3.8	—16.8	—18.5	—40.8	—17.7	—36.7
3. Forest products	—10.9	—41.0	—33.3	—50.6	—31.5	—53.0
4. Paper and allied products	0.9	—16.6	—13.4	—30.6	—13.6	—28.3
5. Printing, publishing, and allied industries	—16.6	—11.5	—35.0	—24.2	—30.6	—21.2
6. Chemicals and allied products	3.1	—17.6	—22.9	—35.6	—20.1	—28.9
7. Products of petroleum and coal	—8.1	—18.4	—17.2	—39.1	—17.4	—37.9
8. Rubber products	7.1	—33.4	—16.4	—56.3	—23.0	—45.0
9. Leather and its manufactures	3.4	—14.3	—18.2	—41.1	—16.2	—37.6
10. Stone, clay, and glass products	—22.4	—32.1	—33.0	—39.9	—34.2	—40.7
11. Iron and steel and their products, not including machinery	—7.3	—32.1	—22.5	—53.2	—24.8	—54.1
12. Nonferrous metals and their products	—9.9	—33.6	—25.6	—65.0	—26.3	—59.7
13. Machinery, not including transportation equipment	—22.4	—37.1	—35.1	—55.6	—39.2	—52.2
14. Transportation equipment	—17.8	—35.9	—25.6	—52.8	—29.0	—52.1
15. Railroad repair shops	—21.7	—22.4	—35.8	—45.5	—31.7	—41.7
16. Miscellaneous industries	—13.2	—28.0	—22.0	—36.8	—27.5	—63.2

DUPLICATION IN AGGREGATE COST OF MATERIALS AND VALUE OF PRODUCTS

Because of the fact that the products of some manufacturing establishments are used as materials by others, the aggregate cost of materials, fuel, etc., and the aggregate value of products for all manufacturing industries include considerable amount of duplication. The net value of all manufactured products, in the form in which they reach ultimate consumers (at f.o.b. factory prices, not retail prices), may be roughly estimated at about two-thirds of the gross value, or approximately $47,000,000,000 for 1929, $27,500,000,000 for 1931, and $21,000,000,000 for 1933.

The marked differences in the rates

of decrease shown for the several groups in the preceding table are worthy of mention. The most striking decrease in value of products recorded for the period, 1931-1933, for any one of the groups is that for "Machinery, not including transportation equipment," 39.2 per cent. This group includes most of the so-called "capital-goods" industries. Noteworthy decreases also appear for the "stone, clay and glass products" and the "forest products" groups, 34.2 per cent and 31.5 per cent, respectively. These are the groups in which the building-materials industries are classified. On the other hand, comparatively small decreases appear for the "paper and allied products" and the "leather and its manufactures" groups—13.6 per cent and 16.2 per cent, respectively.

ADMINISTRATION OF THE TARIFF LAWS

By Eli Frank, Jr.

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CUSTOMS COLLECTIONS

Receipts.—For the fiscal year 1934 receipts amounted to $313,093,508, an increase of $62,686,000, or 25 per cent, over the receipts for the preceding fiscal year. Approximately two-fifths of the increase ($24,000,000) represented duties on imports of distilled and fermented liquors, the importation of which was legalized with the repeal of the 18th Amendment, Dec. 5, 1933. The following statement shows in detail customs collections, refunds and net receipts from all sources during the fiscal years 1933 and 1934. The total amount collected and covered into the Treasury as customs receipts does not include tonnage tax, head tax, internal revenue and miscellaneous collections made by Customs for other bureaus.

VOLUME OF BUSINESS

Entries of Merchandise.—The number of entries of merchandise increased from 2,010,068 in 1933 to 2,159,660 in 1934. Every type of entry showed an increase with the

CUSTOMS RECEIPTS AND REFUNDS

(Fiscal Years 1933 and 1934)

	1933		1934	
Receipts:				
Duties		$250,501,722		$313,093,728
Miscellaneous—				
Sale of unclaimed merchandise and abandoned goods	$39,356		$133,351	
Fines and forfeitures	622,421		485,826	
Liquidated damages	23,598		200,524	
Sale of seizures	41,756		88,249	
All other customs receipts	71,707		91,830	
Total miscellaneous		798,838		999,780
Total receipts		$251,300,560		$314,093,508
Refunds:				
Excessive duties	4,923,378		5,849,243	
Drawback payments	7,590,971		8,076,988	
Total refunds		12,514,349		13,926,231
Net customs receipts		$238,786,211		$300,167,277

exception of mail entries, the number of which decreased from 521,032 in 1933 to 449,799 in 1934.

Drawback Transactions. — During the past fiscal year drawback transactions showed increased activity, the drawback entries totalling 17,319, an increase of 9.3 per cent; 160,609 notices of intent were filed at the various ports, an increase of 55.3 per cent over the number of notices filed during 1933. The amount of drawback claims allowed increased from $7,708,797 in 1933 to $8,092,783 during the past year.

Vessel, Highway, and Other Traffic.—Vessel, highway, and other traffic from foreign countries into the United States continued the decline which has prevailed during recent years, the total number of automobiles entering the United States for the past year being 8,744,310, while the number entering during 1933 was 9,433,328, a decrease of 7.4 per cent. The number of passengers entering the United States by vehicles during the past year was only 25,555,099, a decrease of 1,405,892, or 5.2 per cent. There was, however, a slight increase in the number of documented vessels arriving from foreign countries, there being 28,590, an increase of 859, or 3.1 per cent over 1933, although the passengers arriving by vessels and ferries numbered only 3,569,714, a decline of 83,054, or 2.3 per cent. The number of passengers entering the United States by train showed an increase of 11.5 per cent and, in addition, 9,635,860 pedestrians crossed the border subject to customs inspection, this being an increase of 252,188, or 2.7 per cent over the number crossing the border during 1933.

VIOLATIONS OF CUSTOMS LAWS

Seizures. — For violations of the customs laws, seizures numbered 38,841 during the past year, this being a decrease of approximately 12 per cent from the number reported during the preceding fiscal year. The decline appears to have been due to a large extent to the great reduction in attempts to smuggle liquor following the repeal of the 18th Amendment. The total number of liquor seizures during the past year was only 11,721 as compared with 21,013 such seizures for the previous year, a decrease of 44 per cent. However, one particularly large seizure made by custom officers consisted of 19,760 cases of assorted foreign liquors, together with the offending vessel. Nineteen members of the crew of this vessel were indicted by a Federal Grand Jury on three counts, the first count charging violation of Section 593(a) of the Tariff Act, the second, violation of Section 593(b) of the Tariff Act, and the third charging violation of Section 26 of the National Prohibition Act. This seizure was made prior to the repeal of the 18th Amendment. Seizures also were made of a total of 786 automobiles, 161 boats, and 14 airplanes, with an aggregate value of $502,078.

Fines and Penalties. — Fines and penalties collected for violation of laws pertaining to the Customs Service aggregated $686,349, an increase of $40,330 over the preceding year. Approximately one-third of this total collection was due to undervaluation and false invoicing. It is interesting to note, however, that only 5 per cent of this aggregate was the result of penalties for failure to declare foreign purchases, a decline of 85 per cent from the amount collected for this violation during the previous year when penalties for failure to declare aggregated approximately one-fourth of the total fines collected.

Awards of Compensation to Informers.—Section 619 of the Tariff Act of 1930 provides that any person not an officer of the United States who detects and seizes any vessel, vehicle, merchandise, or baggage subject to seizure and forfeiture under the customs laws, or who furnishes to a district attorney, to the Secretary of the Treasury, or to any customs officer original information concerning any fraud upon the customs revenue, or a violation of the customs laws which information leads to a recovery of any duties withheld, or of any fine, penalty, or forfeiture incurred, may be awarded and paid by the Secretary of the Treasury a compensation of 25 per cent of the net amount recovered, but not to exceed $50,000 in any case. Under this provision of law, during the last fiscal year, $80,820 has been paid to informers, this being 25 per cent of the net amount recovered, $323,280.

MARKING

Regulations. — One of the most troublesome of all the provisions of the tariff law to administer is that of marking, Section 304 of the Tariff Act of 1930, which provides: "Every article imported into the United States, and its immediate container, and the package in which such article is imported, shall be marked, stamped, branded, or labeled, in legible English words, in a conspicuous place, in such manner as to indicate the country of origin of such article, in accordance with such regulations as the Secretary of the Treasury may prescribe. . . . The Secretary of the Treasury may, by regulations prescribed hereunder, except any article from the requirement of marking, stamping, branding, or labeling if he is satisfied that such article is incapable of being marked, stamped, branded, or labeled or can not be marked, stamped, branded, or labeled without injury, or except at an expense economically prohibitive of the importation, or that the marking, stamping, branding, or labeling of the immediate container of such article will reasonably indicate the country of origin of such article."

For many years it has been held that articles marked with the names of certain well-known capital cities and provinces are sufficiently marked to indicate the country of origin. However, many protests were registered against the acceptance of this manner of marking, the theory of the protestants being that the exporters or manufacturers, or, in some cases, the dealers in this country, not wishing the name of the country to appear on the article, purposely had them marked with the name of the city or province. As a result thereof the Secretary of the Treasury, on April 7, 1934, approved an amendment of Article 509(b) of the Customs Regulations providing as follows: "(b) The marking required by section 304 shall include the name of the country of origin. The name of a subdivision such as a kingdom, principality, State, or province, or of a city, within the country of origin is not alone sufficient. The term 'country' as used in section 304 is held to mean the political entity known as a nation: PROVIDED, That the Department will designate the marking considered sufficient to indicate the country of origin in those cases where the name of the country is of such length that to require such name would result in indistinct marking or no marking. However, colonies, possessions, or protectorates outside the boundaries of a mother country shall be considered separate countries."

Widespread misunderstanding, or misinterpretation, of this regulation seems to have arisen, particularly with respect to its applicability to the marking of old and rare books. The impression seems to be prevalent that all imported books, including very old and rare ones, are required by this ruling to be marked to indicate the country of origin. As a matter of fact, this is not true, as the Secretary is constantly exercising the authority given him by the law itself to exempt from the marking requirements any article, if he is satisfied that such article is incapable of being marked, or cannot be marked without injury. As it may be plainly seen that the marking of old and rare books may constitute an injury his discretionary authority is frequently exercised in this direction. Of course, in such instances, the containers are required to be marked to indicate the country of origin. Furthermore, provision is made in the Customs Regulations of 1931 for the exemption from the marking requirements of both books and heir containers which are intended for the personal use of the importer and not for sale.

CUSTOMS REGULATIONS AFFECTING LIQUOR

With the repeal of the 18th Amendment, permitting the legal importation of alcoholic beverages, it became necessary to amend various articles of the Customs Regulations. Among these amendments was that of Article 415, containing the regulations (under paragraph 1798) applicable to adult non-resident passengers, as well as to residents of the United States returning from abroad, entitled to what is known as the $100 exemption. This article was amended to provide that an adult non-resident passenger might bring in one quart of alcoholic beverages without the payment of duty or internal revenue tax if not for sale or commercial use; also that residents of the United States returning from abroad might bring in a like amount without the payment of duty or internal revenue tax. It may be noted here, however, the law provides: ''That a resident of the United States shall not take advantage of the exemption herein granted within a period of thirty days from the last exemption claimed.''

EQUALIZATION OF COSTS OF PRODUCTION

Changes in Rates of Duty.—Section 336 of the Tariff Act provides for an investigation by the Tariff Commission of the differences in the costs of production of any domestic article and of any like or similar foreign article. If the Commission finds by the investigation that the duties expressly fixed by statute do not equalize the differences in the costs of production of the domestic article and the like or similar foreign article when produced in the principal competing country, the Commission shall specify in its report to the President such increase or decrease in the rates of duty as it finds shown by the investigation to be necessary. The section further provides, however, that in no case shall the total increase or decrease of such rates exceed 50 per cent of the rates expressly fixed by statute. Since the passage of the 1930 Tariff Act, the President, under the above provision of law, has made 46 changes in the rates expressly fixed by statute, either increasing or decreasing them as necessary to equalize the differences in the costs of production. The Amendment to the Tariff Act of 1930, Section 350, entitled ''Promotion of Foreign Trade'', contains a provision to the effect that Section 336 shall not apply to any article with respect to the importation of which into the United States a foreign trade agreement has been concluded.

EMERGENCY PROVISIONS

Free Entry of Feed for Livestock.—Section 318 of the Tariff Act of 1930 provides that: ''Whenever the President shall by proclamation declare an emergency to exist by reason of a state of war, or otherwise, he may authorize the Secretary of the Treasury to extend during the continuance of such emergency the time herein provided for the performance of any act, and may authorize the Secretary of the Treasury to permit, under such regulations as the Secretary of the Treasury may prescribe, the importation free of duty of food, clothing, and medical, surgical, and other supplies for use in emergency relief work.''

On Aug. 10, 1934, the President, by proclamation, declared an emergency to exist due to the severe drought in the States of North Dakota, South Dakota, Nebraska, Texas, Missouri, Utah, Nevada, and certain other states, and the resultant loss of life among livestock by reason of the acute shortage of feed. In order to relieve the drought-stricken areas he authorized the Secretary of the Treasury to permit free entry of hay and straw used as feed for livestock under certain prescribed regulations.

NATIONAL INDUSTRIAL RECOVERY ACT

Cotton Rugs.—Section 3 of the National Industrial Recovery Act, after making provision for codes of fair competition, provides in subsection (e) that ''On his own motion, or if any labor organization, or any trade or industrial organization, association, or group, which has complied with the provisions of this title, shall make complaint to the President that any article or articles are being imported into the United States in substantial quantities or increasing ratio to domestic production of any competitive article or articles and on such terms or under such conditions as to render ineffective or seriously to endanger the maintenance of any code or agreement under this title, the President may cause an immediate investigation to be made by the United States Tariff Commission, which shall give precedence to investigations under this subsection, and if, after such investigation and such public notice and hearing as he shall specify, the President shall find the existence of such facts, he shall, in order to effectuate the policy of this title, direct that the article or articles concerned shall be permitted entry into the United States only upon such terms and conditions and subject to the payment of such fees and to such limitations in the total quantity which may be imported (in the course of specified period or periods) as he shall find it necessary to prescribe in order that the entry thereof shall not render or tend to render ineffective any code or agreement made under this title. In order to enforce any limitations imposed on the total quantity of imports, in any specified period or periods, of any article or articles under this subsection, the President may forbid the importation of such article or articles unless the importer shall have first obtained from the Secretary of the Treasury a license pursuant to such regulations as the President may prescribe. Upon information of any action by the President under this subsection the Secretary of the Treasury shall, through the proper officers, permit entry of the article or articles specified only upon such terms and conditions and subject to such fees, to such limitations in the quantity which may be imported, and to such requirements of license, as the President shall have directed. . . .''

Upon complaint of associations of manufacturers producing rugs, wholly or in chief value of cotton, provided for in paragraph 921 of the Tariff Act of 1930, the members of which associations are operating under Codes of Fair Competition or under the President's Reemployment Agreement, pursuant to the above authority, the President directed the United States Tariff Commission to make an investigation to determine whether such rugs are being imported into the United States in substantial quantities or increasing ratio to domestic production of such rugs and on such terms or under such conditions as to render ineffective or seriously to endanger the maintenance of said Codes or Agreement.

After completion of the investigation by the United States Tariff Commission, the President, after considering its report, with its findings and recommendations, as well as the recommendations of the Administrator for National Recovery, directed that—

(a) Imports of chenille rugs, wholly or in chief value of cotton, be subject to a fee of 15 cents per square yard;

(b) Imports of imitation oriental rugs, wholly or in chief value of cotton, be subject to a fee of 23 cents per square yard; and

(c) Imports of rugs, wholly or in chief value of cotton (except grass or rice-straw), other than chenille, imitation oriental, and rag rugs of the type commonly known as ''hit-and-miss'', provided for in paragraph 921 of the tariff act, be subject to a fee of 20 per centum *ad valorem*, which fee shall not be less than 5 cents per square yard.

The President directed that the fees on chenille rugs, wholly or in chief value of cotton, and rugs wholly or in chief value of cotton (except grass or rice straw) other than chenille, imitation, oriental, and rag rugs of the type commonly known as ''hit-and-miss'', be made effective June 5, 1934; and the fees on imitation oriental rugs be made effective on June 10, 1934.

All of the above-mentioned fees are in addition to the duties imposed in paragraph 921 of the Tariff Act of 1930.

SUGAR QUOTAS

By virtue of the authority vested in him by the Agriculture Adjustment Act, the Secretary of Agriculture has issued general sugar regulations governing the entry of sugar into the

Continental United States. Sugar quotas have been established for the Philippine Islands, Territory of Hawaii, Puerto Rico, the Virgin Islands, Cuba, and all foreign countries. That is, certain import quotas are fixed by the Secretary of Agriculture for certain areas outside Continental United States, and when the amount fixed during any calendar year for any area is exhausted, Collectors of Customs are instructed to permit no further sugar from such area to enter Continental United States.

PROMOTION OF FOREIGN TRADE

Amendment of the Tariff Act.—On June 12, 1934, the President approved Public No. 316, 73rd Congress, ''An Act to Amend the Tariff Act of 1930,'' which was made for the purpose of expanding foreign markets for the products of the United States. It authorizes the President from time to time ''to enter into foreign trade agreements with foreign governments or instrumentalities thereof; and to proclaim such modifications of existing duties and other import restrictions, or such additional import restrictions, or such continuance, and for such minimum periods, of existing customs or excise treatment of any article covered by foreign trade agreements, as are required or appropriate to carry out any foreign trade agreement that the President has entered into hereunder. No proclamation shall be made increasing or decreasing by more than 50 per cent any existing rate of duty or transferring any article between the dutiable and free lists.''

This Act repealed what is commonly known in customs parlance as the countervailing duty provisions of those paragraphs of the Tariff Act of 1930, imposing such duties, namely, Paragraphs 369, 371, 401, 1402, 1650, 1687, and 1803(1), but left intact the more properly designated countervailing duty section, (Section 303).

Section 4 provides that before any foreign trade agreement is concluded with any foreign government or instrumentality thereof reasonable public notice of the intention to negotiate such an agreement shall be given. To date public notices of an intention to negotiate agreements with the following countries have been given: Cuba, Brazil, Haiti, Belgium, Colombia, Sweden, Central American countries, Spain, and Switzerland. The agreement with Cuba has been negotiated and was published in Treasury Decision No. 47232.

FOREIGN-TRADE ZONES

After unsuccessful attempts for many years, the advocates for the establishment of foreign-trade zones in the United States succeeded in having enabling legislation passed at the last session of Congress. On June 18, 1934, the President signed Public No. 397, ''An Act to provide for the establishment, operation, and maintenance of foreign-trade zones in ports of entry of the United States, to expedite and encourage foreign commerce, and for other purposes.''

The Act provides for the creation of a Board which ''shall consist of the Secretary of Commerce, who shall be chairman and executive officer of the Board, the Secretary of the Treasury, and the Secretary of War.'' The Board is authorized upon application as provided in the Act, to grant to corporations the privilege of establishing, operating, and maintaining foreign-trade zones in or adjacent to ports of entry in the United States.

An informational bulletin intended as a guide for the use of communities and individuals who contemplate filing applications for foreign-trade zone charters was released Oct. 9, 1934. This bulletin defines foreign-trade zones and sets forth the advantages that may possibly be obtained through the establishment of such. It also gives an explanation of the Act, stating, among other things, that it is only enabling legislation and that the initiative is left to the locality, and that upon the corporation receiving the grant are imposed all risks and costs of operation. This bulletin is in the nature of preliminary advice and is to be followed shortly by an additional bulletin setting forth the rules and regulations governing the actual operation of foreign-trade zones.

THE UNITED STATES TARIFF COMMISSION

BY ROBERT L. O'BRIEN

CHAIRMAN, UNITED STATES TARIFF COMMISSION

MEMBERSHIP OF THE COMMISSION

On Nov. 1, 1934, the membership of the Commission consisted of Robert L. O'Brien (R., Massachusetts), Chairman; Thomas Walker Page (D., Virginia), Vice Chairman; Edgar B. Brossard (R., Utah), and Oscar B. Ryder (D., Virginia). The two vacancies on the Commission caused by the expiration of the term of John Lee Coulter (R., North Dakota), and by the death of James W. Collier (D., Mississippi), have not been filled. (For functions of the Commission, *see* THE AMERICAN YEAR BOOK for 1933, pp. 515, 516).

ACTIVITIES UNDER THE GENERAL POWERS OF THE COMMISSION

Senate Resolution 334.—Prior to 1932-33, the demands upon the Tariff Commission were such that a large portion of the time of the staff and of its appropriations were spent upon work under the so-called flexible provision. This situation was somewhat changed during the year 1932-33 because of requests from the Senate, especially with respect to the work required under Senate Resolutions 325 and 334, which are set forth in detail in THE AMERICAN YEAR BOOK for 1933 (pp. 516—519). Because of the volume of work involved in response to Senate Resolution 334, much of it has carried over into the present period and, in fact, is still in progress.

Foreign Trade Analysis.—The first section of Senate Resolution 334 required an analysis of the import and export trade of the United States with each important foreign country, together with a list of the tariff and other trade restrictions imposed by each such foreign country upon articles imported from the United States, and an analysis of the invisible items entering into trade barriers and to the significant economic and competitive facts affecting our foreign trade. The reply to this part of the resolution was completed early in 1933-34. The second part of the resolution requires a revision of the Summaries of Tariff Information. These summaries as prepared by the Commission prior to the tariff revisions of 1922 and 1930 cover each product enumerated in the tariff act and present all the available information with respect to each which it is deemed will be of value to those handling tariff legislation.

The Trade Agreements Act which is an amendment to the Tariff Act of 1930, and designated as section 350 of that Act, contains a provision whereby the President, before the concluding of any such agreement, shall seek information and advice thereon from the Tariff Commission and from certain other Government agencies. The availability of summaries for the use of the Tariff Commission becomes increasingly important if the Commission is to advise wisely concerning action under this section. The provisions of this section and of section 3(e) of the National Industrial Recovery Act hereinbefore mentioned establish new tariff policies in the United States.

Fisheries. — Another investigation of some magnitude requested by the Senate is provided for in Senate Resolutions 156 and 165. These resolutions direct an investigation by the Tariff Commission with respect to subsidies, bounties, and other assistance given fisheries enterprises by foreign governments; the employment of alien fishermen in foreign ports on United States fishing vessels; the effect of imports of certain fish on United States production; and the competition between imported and domestic fishing gear.

Laces and Lace Articles. — The Commission issued an economic and technical study of laces and lace articles. The unique feature of the publication is that it brings together between one set of covers the history, the technique, and the economics of the products of the six major lace-making machines together with the details of the hand-made lace industry. In addition there is a history of the evolution of hand-made lace and of the lace-making machines. Twenty-one illustrations add both value and interest to the publication. The descriptions of the artistic work preparatory to the emergence of the first piece of finished lace from any of the machines and the descriptions of the technical operation of the lace-making machines themselves are said to appear for the first time in English in the new book.

The report has a short introduction relative to the basic differences in organization of the domestic and foreign lace industries, and (for the hurried reader) is followed by summaries of the succeeding chapters. The body of the report is concerned with—1. The products of the Nottingham lace-curtain machine; 2. Fancy lace made on the Levers lace-machine; 3. Bobbinet; 4. Barmen lace; 5. Lyons Alençon lace; 6. Hand-made lace; and 7. the sundries of paragraph 1529(a) of the Tariff Act of 1930. Subsidiary chapters deal with the evolution of hand-made lace and historical data concerning the origin and development of lace machines. A summary of legal decisions touching upon the articles discussed in the report is added as an Appendix. This is highly important as the lace and embroidery paragraph 1430, of the Tariff Act of 1922 was probably the most litigious paragraph in the entire act.

Long-staple Cotton Survey. — A study of the subject of long-staple cotton has been made with special reference to the effect of the duty. This study was made under the general powers of the Commission at the request of the State Department. From 1883 to 1930, except for a brief period under the Emergency Tariff Act of 1921, all imported cotton was free of duty. The Tariff Act of 1930 placed a duty of 7 cents per pound on cotton 1⅛ inches or more in length of staple, generally called long-staple cotton. The report gives details of the uses of long-staple cotton, as we as of the tariff problems involved.

Imports and Duties. — The Tariff Commission, in connection with information furnished to the Congress touching on proposals for legislation, tabulated for the year 1933 the imports for consumption under each paragraph in the tariff act. As a feature of this study the Commission made a special summary of the imports which, although not mentioned in the free list of the Tariff Act of 1930, entered free of duty during 1933 because of special provisions. The results of this study are summarized in the table (page 490).

Dyes and Other Synthetic Organic Chemicals.—Production and Sales of Dyes and Other Snythetic Organic Chemicals, 1933: This report gives in full detail the statistics and related facts concerning the production and sale of coal-tar chemicals, including dyes and other synthetic organic chemicals, for 1933. The five principal groups of products discussed are dyes, coal-tar intermediates, coal-tar medicinals, synthetic resins, and synthetic organic chemicals not of coal-tar origin. This document records in greatly condensed form the statistics with respect to dyes and other coal-tar chemicals which were published annually by the Tariff Commission up to 1931.

Tariff Bibliography.—This bibliography contains a comprehensive classified and annotated list of references on the tariff. While the main stress in this volume is on the tariff situation in the United States, the material included is by no means limited to this country, and the books, pamphlets, and periodicals listed also furnish information on the more important countries of the world. The contents are classified under the following headings: General Collections of Treaties, Tariff Acts, Regulations, and Decisions; Dictionaries and Encyclopedias; Theory; History, Policy, and Practice; Administration; Legislation; Economic Aspect; Tariff Controversy; Local Protectionism; Bibliography; Debate Material. An Appendix follows which contains a list of periodicals; a list of libraries; and

SPECIAL IMPORT SUMMARY *

Commodity	Value	Computed duties and taxes	Equivalent *ad valorem*
			Per cent
Total value of imported merchandise entered for consumption	$1,435,755,781	$283,654,876	19.8
Duties		272,377,782	19.0
Taxes, Rev. Act 1932		11,277,094	
Dutiable merchandise (including articles subject to special revenue tax)	529,746,058	283,654,876	53.5
Dutiable under general rates	478,591,857	213,144,940	44.5
Dutiable at 20 per cent reduction under Cuban Reciprocity	51,154,201	70,509,936	137.8
Free merchandise	906,009,723		
Free under special provisions	102,690,886		
From Philippine Islands	84,482,064		
From Virgin Islands	391,610		
From Cuba	525,333		
For supplies of vessels	195,049		
For diplomatic officers	12,152		
For the United States	938		
Salt for curing fish	25,510		
Lead ore and concentrates for smelting, refining and export	1,212,248		
Lead bullion or base bullion for smelting, refining and export	151,289		
Tungsten ore for smelting, refining, and export	95,730		
Zinc ore for smelting, refining, and export	73,216		
Wheat for grinding in bond and export	4,208,730		
Carpet wool under bond for manufacture of rugs, etc	11,317,017		
Free list	803,318,837		

* Analysis, compilations and computations made from unpublished data of Bureau of Foreign and Domestic Commerce, Department of Commerce.

documents, reports, bills, and resolutions. Much of the important economic material of the world is not available in English translation, hence there are included in this bibliography studies in Dutch, French, German, Italian, Portuguese, Spanish, and Scandinavian languages.

An important part of the compilation is the analysis of the Congressional Record which includes references to all the important speeches made and subjects discussed in the debates on Canadian reciprocity in 1911, the Revenue Act of 1916 which created the Tariff Commission, and various tariff acts from the Emergency Tariff of 1921 to the Hawley-Smoot Act and to the end of the Hoover Administration.

Another interesting feature is a complete bibliographical history of the revision of the customs administrative laws of this country. So far as known, this volume is the only printed source to give this information. Copies of the compilation have been furnished the government depository libraries.

Alcoholic Beverages.—At the time the Congress was considering legislation necessitated by repeal of the National Prohibition Act, the Tariff Commission, in order to have available before the legislators pertinent information regarding the former trade in alcoholic beverages, prepared for the Congress a complete record of statistics covering the trade in these products over the past 30 years. Because of the national importance from a revenue standpoint of the duties and taxes on these products, the Tariff Commission is now preparing for publication a general report on whiskey, wine, beer, and other alcoholic beverages, and hopes to have this available early in 1935.

WORK UNDER THE FLEXIBLE PROVISIONS, SECTION 336 OF THE TARIFF ACT OF 1930

Investigations. — The number of investigations completed under this section during the past year has been relatively few, twelve in all. Of these, three resulted in increases and four in decreases, no action being recommended in the others. The most important of these completed investigations is that on sugar.

Sugar. — The President in May, 1934 approved the findings of the Commission with respect to sugar, and reduced the rate on 96 degree raw sugar from Cuba to 1.5 cents per pound, and on sugar from other countries to 1.875 cents per pound. Rates on other degrees were changed in proportion. The new duties became effective June 8, 1934. The action marked the close of a comprehensive and careful study by the Tariff Commission. The President at the same time signed the Jones-Costigan Sugar Bill which made sugar a basic commodity under control of the Agricultural Adjustment Administration and subject to a processing tax ''not greater than'' the reductions in the tariff rates.

Sugar, under the Tariff Act of 1930, as passed, was dutiable at 2½ cents per pound for 96 degree raw sugar full duty, and 2 cents per pound for Cuban. The action reducing those rates was based on a comparison of the costs of production of cane and beet sugar in continental United States and of cane sugar in Hawaii with the costs of production of cane sugar in Cuba, the principal competing country.

The findings of the Commission, with respect to refined sugar, state that the differences in cost of production between that produced in the United States and that produced in Cuba, during the cost period 1929-1931, do not warrant any change in the relationship in the duty on refined (100 degree) sugar to the duty on raw sugar prescribed in the act of 1930 and that, consequently, any reduction in the duty on raw sugar should be accompanied by the same percentage reduction in the rate on refined sugar. The rate on 100-degree sugar imported from Cuba, therefore, by the proclamation, is reduced from 2.12 to 1.59 cents per pounds. The Commission, however, calls attention to a new situation which is developing during later years which may call for a new relationship. This is the building of refining facilities in connection with raw sugar mills.

The Commission, in connection with its investigation of the difference of costs between domestic and Cuban sugar conducted for the purpose of Section 336, made a general investigation under Section 332, and its report to the President calls attention to certain facts ascertained therein which have a major bearing on public policy with respect to sugar. These include a comparison of the costs of production of raw sugar in Puerto Rico and the Philippines with costs in Cuba, together with an analysis of data concerning the supply and demand for sugar, the trend of prices, and other pertinent facts.

As a result of this general study the Commission found that a change in duty rates alone would not settle the chaotic condition in the sugar industry since the supply of sugar available for the American market is so great and the competition to supply the American market is so keen as to depress the market price far below costs. Thus, while the three-year average costs of 96 degree raw sugar in Cuba delivered to Atlantic and Gulf seaport refineries was 1.923 cents per pound, the average price delivered at New York was only 1.49 cents per pound in 1930, 1.38 cents per pound in 1931, and 0.925 cents per pound in 1932. And further, that the most effective way, based on the information ascertained by investigations of the Commission, to improve the situation, both in Cuba and in the United States, was to lower the Cuban duty and at the same time adjust to market demand deliveries of sugar, not only from Cuba but from all other areas contributing to the American supply.

The relative importance of the sugar producing areas supplying the United States is shown by the following figures which relate to 1932. Of the total quantity of domestic sugar consumed in 1932, 1,232,000 tons was beet sugar and 150,000 tons chiefly Louisiana cane sugar. Of the total quantity supplied by the insular areas that year 957,000 tons came from Hawaii, 851,000 tons from Puerto Rico, and 975,000 tons from the Philippines. Imports from Cuba in that year amounted to 1,647,000 tons, over 30 percent less than that imported during the three years immediately preceding.

Fish Packed in Oil.—The President approved the findings of the Tariff Commission with respect to fish packed in oil (or in oil and other substances), dutiable at 30 per cent *ad valorem* under Par. 718(a) of the Tariff Act of 1930. The report specified—(1) an increase in the duty on tuna from 30 per cent to 45 per cent; (2) an increase in the duty on other fish packed in oil, when of a value not exceeding 9 cents per pound, including the weight of the immediate container only, from 30 to 44 per cent; and (3) no change in the present duty (30 per cent) on other fish in oil, when valued at more than 9 cents per pound. Japan was found to be the principal competing country for tuna packed in oil and Norway for other fish packed in oil. The cost study of this investigation was limited to tuna and to sardines, packed in oil. Sardines constitute about 94 per cent of domestic production and about 91 per cent of imports of all fish, except tuna, packed in oil or in oil and other substances.

Production in the United States of fish in oil is restricted to tuna, sardines, smoked salmon, and antipasto. Domestic production of antipasto is a new development and only negligible quantities have been packed. Imports are confined to tuna, sardines, anchovies, antipasto, smoked salmon, and sundry fish specialties. Only tuna, and sardines valued at 9 cents or less per pound, are subject to the new rates of duty which became effective Jan. 13, 1934.

Canned Clams.—The President approved a report of the Tariff Commission under Section 336 of the Tariff Act of 1930, decreasing the rate of duty on canned razor clams from 35 to 23 per cent *ad valorem*, and increasing the amount of duty to be collected on other canned clams by making them dutiable at 35 per cent assessed on the American selling price rather than on the foreign value. No change was made in the duty on clam chowder. The changes in duties became effective May 31, 1934. Razor clams are a distinct species produced commercially only on the Pacific coast of the United States and in British Columbia, and they command a higher price than other canned clams or clam products.

Other canned clams consist of several species of (a) hard clams produced on the Pacific coast and the Atlantic coast of the United States and (b) soft clams produced on the Atlantic coast of the United States. Imports consist of hard clams. The imports of canned clams (other than razor clams) are almost entirely from Japan and they are sold for the most part on the Pacific coast, where they compete chiefly with the output of the Pacific coast producers of canned hard clams.

Laminated Sheets.—The investigation was instituted under the provisions of Section 336 of the Tariff Act of 1930 in compliance with a Senate Resolution. Laminated sheets generally consist of a paper or fabric base coated or impregnated with a synthetic resin. The sheets and resin under heat and pressure solidify into a hard composite sheet. They are, as a rule, further processed by sawing, cutting, and punching into shapes and forms for use in the electric, automobile, and radio industries. Laminated sheets are also used for table tops, trays and wall panelling. As a result of the Commission's investigation the duty on these sheets was decreased from 25c. per pound and 30 per cent *ad valorem* to 15c. per pound and 25 per cent *ad valorem*. The new rates became effective May 23, 1934.

INVESTIGATIONS OF UNFAIR COMPETITION, SECTION 337 OF THE TARIFF ACT OF 1930

Provisions of Act.—Under the provisions of section 337 of the Tariff Act the Commission is authorized to investigate alleged unfair methods of competition in the importation of an article or in the sale in the United States of the article. When the findings of the Commission justify it, the President has the power to refuse entry, of articles included in investigations, for the purposes of this section, such exclusion of entry remaining in effect until otherwise ordered by the President. The section also provides that an appeal may be taken from the findings of the Commission by the importer or consignee upon a question or questions of law, before the findings are sent to the President.

Drive Springs (Bendix Springs).—The findings of the Tariff Commission in this investigation pursuant to section 337 of the Tariff Act of 1930, were that the unlawful importation and sale of drive springs (Bendix springs) for engine starting apparatus had substantially injured, and if permitted to endure, would continue to injure the industry of making and selling such drive springs in the United States. The President approved these findings and directed the Secretary of the Treasury to instruct customs officers to exclude from entry into the United States until and including March 4, 1935 (which is the expiration date of the governing patent) the importation of all drive springs in violation of complainants' patent except where the importation is made under license of the registered owner of the United States Letters Patent No. 1258302. This action made final the temporary order of exclusion, except under bond, issued by the President Jan. 8, 1934. The drive spring involved is of a distinctive type of coiled and flattened metal and used in engine starting apparatus for forming a yielding driving connection therein in the line of transmissions of power. Approximately 85 per cent of the automobiles in the world are equipped with this type of drive spring.

Cigar Lighters.—The Tariff Commission found that cigar lighters of a certain mechanism have been imported and sold in the United States in violation of Section 337 of the Tariff Act of 1930. By an exclusion order issued by the President, relief is granted both from patent infringement and unfair simulation of certain cigar lighters manufactured in the United States. The exclusion from entry applies whether or not the lighters are attached to or form parts of or are combined with other articles such as cigarette cases and table ornaments. The cigar lighters included in the exclusion order have an abradant wheel journaled on top of the lighter receptacle, with a snuffer positioned on one side of the wheel and a finger piece positioned on the other side of the wheel, the finger piece being designed to raise the snuffer and revolve the wheel by manual pressure when pressure is applied downwardly on the finger piece. The automatic closing of the snuffer and extinguishing of the flame result when such downward pressure is released.

Oxides of Iron.—The President approved the final findings of the Tariff Commission in the investigation, for the purposes of section 337 of the Tariff Act of 1930, of alleged unfair methods of competition or unfair acts in the importation or sale of oxides of iron suitable for pigment purposes. The Secretary of the Treasury was directed by the President to exclude from entry oxides of iron produced in the manner specified in the two patents for which the complainant is the sole and exclusive licensee to manufacture and to sell within that portion of the United States east of the States of Montana, Wyoming, Colorado, and Texas. The patents are the property of the West Coast Kalsomine Company, a California corporation. Thus the temporary order of exclusion, except under bond, issued on March 2, 1933, was made final. Upon completion of the investigation the findings were sent to parties of record in accordance with the provisions of the law. Within the prescribed time there was filed in the Court of Customs and Patent Appeals, also in accordance with the law, an appeal for a review of questions of law involved in the Commission's findings. In May a decision affirming the Commission's findings in the investigation was handed down by that Court.

Slide Fasteners (Zippers).—The alleged unfair methods of competition and unfair acts in the importation or sale of slide fasteners (zippers) and articles containing such fasteners, and of parts of these slide fasteners were found to exist by an investigation by the Tariff Commission for the purposes of section 337 of the Tariff Act of 1930. The President approved these findings and at the same time directed the Secretary of the Treasury to instruct customs officers to exclude from entry such slide fasteners and parts thereof as have been found to infringe each of several patents, except where the importations are made under license of the registered owner of these patents. By this action the temporary orders of exclusion, except under bond, issued on August 18, 1932, and March 2, 1933, in the case of slide fasteners and on May 10, 1933, in the case of parts of the fasteners were made final. Subsequent to the completion of the slide fasteners investigation and the sending of the findings to parties of record there were filed in the Court of Customs Appeal, in accordance with the provisions of the law, appeals by two of the respondents for a review of questions of law involved in the findings of the Commission. In June, 1934 that Court rendered an opinion affirming the Commission's findings in that investigation. There was no appeal taken from the findings with respect to parts of slide fasteners.

INVESTIGATIONS UNDER SECTION 3(e) OF THE NATIONAL INDUSTRIAL RECOVERY ACT

The President has requested during the current year ten investigations under this section. Of these, reports with respect to six have been completed and the others are in progress. In instances where these investigations have indicated the desirability of limiting imports from foreign countries, the question of the limitation has been taken up directly with the representatives of the Governments concerned. Where fees permitted under the law have appeared desirable, they have been imposed by Executive Order of the President. The tabulation that follows shows the action taken in the investigations completed under section 3(e).

TARIFF ACTION UNDER NIRA

Article	Nature of change	Effective date of change
Wood-cased lead pencils	No action under section 3 (e), but by agreement imports from Japan are to be limited to not more than 125,000 gross in any one year, 45,000 gross in any one quarter, and 25,000 gross in any one month	1934 May 1
Quicksilver	No change	—
Wool felt hat bodies	No change	—
Matches	No action under section 3 (e). Excise tax provided for in section 611 of Revenue Act of 1934	—
Cotton rugs:		
Chenille	Fee of 15 cents per sq. yd. in addition to the duties provided for in Tariff Act of 1930	June 5
	By agreement, imports from Japan are limited to 650,000 sq. yds. per annum	June 1
Hit-and-miss rag rugs	By agreement, imports from Japan are limited to 3,250,000 sq. yds. per annum	June 1
Imitation Oriental rugs	Fee of 23 cents per sq. yd. imposed in addition to duties provided for in Tariff Act of 1930	June 10
Rugs, other than chenille, imitation oriental, and hit-and-miss rag rugs	Fee of 20 per cent *ad valorem* but not less than 5 cents per sq. yd., imposed in addition to duties provided for in Tariff Act of 1930	June 5
	By agreement, imports from Japan are limited to 4,070,000 sq. yds. per annum	June 1
Red Cedar shingles	No action under section 3 (e), but by agreement imports from Canada to United States are limited to an amount equal to 25 per cent of domestic consumption as estimated, for stated intervals, for the domestic industry by the code authority. A system of marking the grades was also agreed upon. It was further agreed that as long as the cost-protection price system is maintained by the domestic industry each import invoice will show the price and terms of sale	-

COOPERATION OF THE COMMISSION WITH OTHER GOVERNMENTAL AGENCIES

Mention should be made of the assistance which the Tariff Commission has contributed to other Governmental agencies in carrying out the emergency and other legislation enacted during the past year or two. Special reference should perhaps be made to the cooperation given to the Department of State, especially in connection with the reciprocal tariff program; to the Departments of Agriculture and Interior through the loan of personnel; and to the National Recovery Administration through the work done under section 3(e) of the National Industrial Recovery Act.

THE EXPORT AND IMPORT BALANCE

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FOREIGN TRADE EQUILIBRIUM

From the earliest records of American foreign trade until 1873, the trade balance was typically on the import or passive side. Since 1873, the balance has been characteristically on the side of exports. Various explanations have been advanced for the persistence of the passive balance during the first three-quarters of the 19th century, but they converge, for the most part, upon the theme that, as a new and growing country, not only were we borrowing capital continuously abroad, but immigrants were bringing quantities of capital with them, and that the merchandise import balance roughly measured the net balance of capital imports.

The appearance of an active export balance about 1873 was held to reflect the arrival of the country at a stage of industrial development where annual interest payments and principal repayments exceeded new capital borrowings from abroad. After 1896, large net expenditures of American tourists abroad, the growing volume of immigrant remittances, and the appearance of American investments in foreign areas, offered additional explanation of the export balance. During the period of the World War, our immense international capital lending became the bulwark of the export balance, and, in the post-war period, additional lending in the international capital markets on a gigantic scale, plus the steadily mounting wave of tourist travel, giving us a passive service balance, have received the greatest emphasis as explanations of the export balance.

EXCESS OF EXPORTS: 1934

Trade statistics covering the first ten months of 1934 disclose that the United States has incurred again a sizeable export balance of trade. In contrast with the export balance of 1933, which was one of the smallest since 1895, the balance for 1934 approached the average peace-year balance of the past 35 years, amounting to $395,000,000 for the first ten months of the year, it was 260% greater than the export balance for the same months of 1933 and 64% as much as the export balance for the similar period of 1929.

The dollar volume of exports for the first ten months of 1934 showed substantial improvement over 1933, but the improvement was most marked in the first six months of the year, with later months evincing a definite slowing down of the gains. This is clearly hown by the Department of Commerce index of export values (1923-1925—100, adjusted for seasonal variation), which averaged 45 for the first six months and 48 for the next four, in comparison with the averages of 30 and 41 respectively for the same period of 1933. For the entire ten-month period ended in October, the value of exports amounted to $1,768,000,000 or 36% more than the comparable period of 1933 when American export trade reached the low water mark of the great depression. Despite the substantial gains from the depression low, the dollar volume of exports for the period was still 60% below its 1929 volume, comparably reckoned.

The improvement in the dollar volume of American export trade was necessarily more marked than in the case of import trade to produce so sharp an expansion in the export balance from the preceding year. As in the case of exports, the value of imports was substantially greater during the first six months of 1934 than in 1933, the Department of Commerce seasonally adjusted index for import values relative to the average for 1923-1925 attaining a level of 45 as against 31. In contrast with exports, however, which experienced a further slight gain in the following four months, the index for imports fell back to 40. For the whole ten-month period, imports amounted to $1,374,000,000, an increase of barely 16% from a like period of 1933 in contrast with a gain of 36% for exports.

MEANING OF THE 1934 BALANCE

Several alternative interpretations offer themselves to explain the sharp rise of the export balance during 1934. First, it might be regarded as a reflection of a more rapid recovery of business activity abroad than domestically during 1934, resulting in a greater and more consistent extension of foreign demands for American goods than of American demands for foreign goods.

Second, it might be viewed as the inevitable outcome of the American policy of dollar depreciation, begun April 19, 1933 and culminating in the dollar devaluation of 41%, Jan. 31, 1934. As was pointed out in this article for 1933 (THE AMERICAN YEAR BOOK, 1933, p. 520), the effect of dollar depreciation was to stimulate import values at the expense of export values, since it operated to raise arbitrarily, though not universally, the prices of imported commodities, and to lower arbitrarily, though in varying degree, prices of export commodities to foreigners. While the dollar was depreciating, consequently, there existed an incentive to Americans to enlarge foreign purchases. Not unlikely the opposite effects were experienced during 1934 following dollar devaluation and stability of the international value of the dollar.

Third, the recovery of the 1934 export balance might be interpreted simply as the consequence of the more rapid rise of domestic prices during 1933 and 1934 than occurred in foreign countries.

Probably a combination of these alternative interpretations is necessary to a complete explanation of the 1934 export balance. Available indexes of business activity in important foreign countries disclose a greater and more consistent improvement than has been shown in domestic business activity, which may well have been reflected in a more pronounced expansion of American exports than of imports. Again, dollar devaluation, disposing for the time being of uncertainty over the gold value of the dollar, undoubtedly brought into play delayed foreign demands for American goods, and a retardation of American demands for foreign goods, stimulated in 1933 by the depreciation of the dollar. In addition, the extent to which dollar devaluation had arbitrarily lowered the prices of many American exports to foreigners, probably induced larger American purchases by foreigners, while the extent to which it had arbitrarily raised prices of many imports tended to act as a brake on foreign purchases by Americans.

Finally, the more rapid rise of domestic prices generally, relatively to the course of foreign commodity prices, undoubtedly manifested itself in a relatively greater rise of dollar export values than import values. That this rise did not suffice to check the expansion of exports is to be accounted for largely by the failure of the price advance to counterbalance the effects of dollar devaluation in reducing prices of American goods to foreigners.

SETTLEMENT OF THE ACTIVE MERCHANDISE BALANCE

The devaluation of the dollar on Jan. 31, 1934, temporarily reestablished a modified gold standard for the United States internationally. Accordingly, the process of adjustment of the 1934 merchandise balance may again be described in the light of a gold standard mechanism. Under this mechanism, international merchandise transactions are settled, along with other international transactions involving services, capital and income transfers and other cash payments, by mutual clearance in the foreign exchange markets at a relatively fixed gold value for the dollar. Each of these types of transactions are closely inter-related by monetary and trade influences, though each possesses a certain degree of independence from the rest. Their chance interplay always goes a long way in their equating.

THE SERVICE BALANCE

What is generally regarded as the service balance of trade is the balance remaining from offsetting international payments for freights, government expenses, tourist travel, immigrant remittances, royalties and similar so-called ''invisibles.'' Consistently ''passive'' in the post-war period, this balance has regularly exceeded the ''active'' merchandise balance since 1923. It has been, therefore, an important source of dollars enabling foreigners to meet their excess of merchandise imports from the United States without shipments of gold, and it has also been an important source of dollars for facilitating interest and capital payments by foreigners to the United States. Its peak was reached in 1929, when the total net ''passive'' service balance aggregated $1,166,000,000, but the effects of the depression on the main service components (net shipping, tourist, and immigrant payments) brought this total down to $347,000,000 in 1933.

The passive service balance for 1934 was adversely affected by the low volume of international trade and shipping, the low level of American incomes and unsettled state of foreign political and economic affairs. The first of these factors meant reduced international payments for freights, the second, reduced immigrants' remittances, and the second and third together, reduced foreign travel by Americans. In varying degree these factors continued to operate in 1934, tending to prevent any substantial improvement in the passive service balance. Notwithstanding, some improvement in this balance may safely be anticipated. For the first six months of the year, the Department of Commerce estimated a net passive balance of $174,000,000, a period covering the seasonal lows both for trade and travel.

THE CAPITAL BALANCE

The capital balance for 1934, the annual balance of all long-and short-term investment transactions, was ''active'' rather than ''passive,'' as has been the rule throughout the post-war period. In other words, the United States in 1934 was on balance a capital importer. The accounted for active capital balance aggregated $560,000,000 for the first six months and may have exceeded this amount as much as $200,000,000 more. International financial forces operating through the remainder of the year were of a character capable of enlarging this balance materially.

This sharp reversal of the capital balance is to be interpreted as a temporary phenomenon, largely, but not entirely provoked by devaluation of the dollar. Immediately following official dollar devaluation, a large inflow of American-owned capital, placed abroad for safekeeping during the period of dollar depreciation, took place. To some extent, it was supplemented by an influx of foreign capital, partly in its turn seeking a temporary haven of refuge from unsettled financial and political conditions in Europe, and partly seeking participation in anticipated American recovery. As time passed by, the repatriation of American capital tended to exhaust itself, but the inward movement of foreign capital continued, accelerated from time to time by recurring fears of serious financial and political disturbance in Europe.

THE CAPITAL INCOME BALANCE

The capital income balance, reflecting the huge international creditor position of the United States, was again an active balance. It was at least as small, if not smaller, than that for 1933, when it amounted to $409,000,000 (including all payments on governmental debt account as part of the balance), or less than half of the balance for 1930. The cumulative effect of foreign defaults on dollar obligations, private and governmental, low earnings and dividends from American-owned factories and properties abroad, some liquidation of American foreign assets, together with a greatly reduced return to foreigners on their American investments, suffice to account for the greatly reduced balance on capital income account.

THE GOLD BALANCE

With official devaluation of the gold dollar and the restoration of a modified gold standard system, internationally at least, gold movements once more assumed an important role in adjusting the balance of international transactions of the United States. Gold movements were resumed directly with gold standard countries, and, through the mediation of the London gold market, with the world at large. In addition, near-by gold-producing countries commenced anew to market gold in the United States, as did also a few non-producing but favorably located countries desirous of disposing of gold stocks.

During the first ten months of the year, the United States imported on balance $1,005,000,000, valued at the new gold content of the dollar, or approximately 31% more than the entire world's gold production for the period. Over the entire year, net gold imports totalled upwards of $1,200,000,000. In dollar values, this was the largest annual gold import balance on record. More than three-fifths of it, or $759,000,000, was received the first two months following dollar devaluation, but a sizable import balance occurred also in every other month but one.

For a single country to effect so heavy a drain on world gold supplies in a single year, not only worked financial hardship on those countries struggling to maintain their established gold standard systems, but as well on those countries endeavoring to improve their international financial standing by building up monetary and other gold stocks.

CONCLUSION

Viewing the 1934 balance of international payments as a whole, it is manifest that many of the shifts which took place were largely conditioned by the depreciation of the dollar in 1933 and its devaluation early in 1934, and by the generally unsettled state of international finance and politics. The active merchandise balance was clearly more than offset by other balances. Indeed, the passive service balance alone may well have sufficed to finance the trade balance. It could scarcely have sufficed, however, to finance the active capital income and amortization balance and the large active capital balance induced by dollar devaluation and disrupted international affairs. For this, huge gold imports were required. Such a "shower of gold" may gladden the hearts of monetary reflationists, but it is by no means clear that the restoration of international financial stability, so essential to the recovery of world trade, had been brought one step nearer by its occurrence.

CONDITIONS OF INTERNAL COMMERCE

By Ada Lillian Bush

Chief, Consumer Market Section, Bureau of Foreign and Domestic Commerce, Department of Commerce

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BASIC PRODUCTION

Industrial production continued a gradual upward trend through the early months of 1934, as was anticipated in our preview for that period (*see* The American Year Book,

1933) and, despite the back-sliding that occurred in the second and third quarters, shows at the end of the year a record of distinct improvement as compared with 1933. Among the real and imaginary obstacles to recuperation that characterized 1934 were an apparent lack of cooperation between labor and industry in self-adjustments to the application of recovery measures, and subsequent labor strikes; a trend toward rising prices, during the first quarter, in advance of increases in buying power; dissatisfactions concerning mounting Federal expenditures, offset by apprehensions relating to a potential reduction in the use of Federal funds for relief; fear inspired by the possibilities of currency inflation, and general public restlessness under activities such as are usually incident to approaching elections for political offices. Comparable statistical measurements covering industrial production for the first ten months of each year, traced through monthly issues of the Commerce Department's *Survey of Current Business,* reveal that the total for 1934 represents a change for the better to the extent of a 25 per cent rise from the low levels of 1932 and a gain of 3.9 per cent over 1933 production. Available statistics for November and December indicate that, with due allowance for seasonal variations, the trend of production is continuing upward.

PRODUCTION IN MAJOR INDUSTRIAL GROUPS

Production reports from eight important manufacturing industries show, for ten corresponding months of each year, percentage changes in 1934 from 1933 as follows: automobiles, up 40.7; cement, up 22.7; iron and steel, up 13; boots, shoes and leather, no change; lumber, no change; rubber tires and tubes, up 2.2; textiles down 16, and tobacco manufacturers up 7.4 per cent. Automobile output was the largest for any year since 1930. Late December reports reveal a continuation of this expansion with 34,000 automobiles produced during the third week of December as compared with approximately 10,000 units less for the preceding week. Though lumber as well as boots, shoes and leather failed to show improvement over 1933, the percentage change in these industries over the 1932 level was 32 and 11.4 respectively. The low textile production is largely attributable to the labor strike in that field and to buyer resistence to price rises in some lines. Residential construction achieved a 9.1 per cent advance from 1933 and construction in general was up 50 per cent. Mineral production and electric power output were each approximately 6 per cent above the 1933 record. An extra-seasonal expansion in electric-power output for practically all major geographical areas and further gains for the steel industry were outstanding features of late December reports.

DISTRIBUTION MOVEMENT

The total number of freight car loadings through October of 1934 exceeded 1933 by 8.6 per cent and available data at the year-end reveal continued gains. Sales of automobiles were up 32.8 per cent. In retail trade the current year surpassed all records since 1929. Government aid to farmers was reflected in sales through rural stores, which advanced 23.6 per cent from 1933. The improvement in retail trade was general, however, as pronounced gains over the preceding year were also revealed by sales statistics through department stores, variety stores, and chain stores. Estimates obtainable during the last week of December indicate remarkable activity in sales of Christmas goods.

EMPLOYMENT AND PURCHASING POWER

Comparable averages for each year show 1934 factory employment above the 1933 average by 16.7 per cent with a gain in factory payrolls of 31.4 per cent, notwithstanding the late-summer strike which brought the September index 5.4 per cent below September, 1933. It is conceivable that failure to make normal replacement of machinery and equipment in some plants may be responsible for greater increase in the use of labor than is reflected by an expansion in the commodity output of those factories. The volume of relief disbursements to the unemployed through government agencies constitutes a large addition to consumer buying-power. The December, 1934, preliminary report of the Agricultural Adjustment Administration reveals that during the year the Government has paid farmers a total of $372,017,672 in rental and benefit payments. It is estimated that cash farm income in 1934 from all sources will be approximately $1,000,000,000 above the total for 1933. From these estimates it is indicated that, in the face of the drought in large areas that reduced the yield of grains, cash farm income for 1934 is 19 per cent higher than in 1933 and 39 per cent above 1932.

PRICES, CREDIT AND FINANCE

Available data show no evidences of sharp fluctuations in wholesale commodity prices. Wholesale prices rose gradually from the high point reached toward the close of 1933. The combined index for 784 commodities indicate that this slow uptrend brought the average for the year 14.8 per cent above the 1933 wholesale-price average. The general level of prices for farm products advanced 27.5 per cent above the preceding year and was 35.4 per cent higher than for 1932. On the average, retail prices other than food prices have not changed appreciably since 1933. Experiments in price advances in some lines promptly met with consumer resistance and led to price reductions to retrieve lost sales. The state of credit at the close of 1934 is encouraging for next year's business. Excess reserves of Federal Reserve Bank members are extraordinarily high at the present time. This situation was effected through prescribed banking policies designed to insure maintenance of high reserves. Data obtained on the last day of 1934 show an expansion in bank debits, outside of New York City. The total for the last week of the year was 18 per cent in excess of the comparable 1933 figure. There have been few bank failures since President Roosevelt's action in March, 1933. The number of commercial failures in 1934 fell 42 per cent below 1933 with liabilities showing a drop of 49.8 per cent.

THE OUTLOOK

On the basis of statistical comparisons with conditions at the lowest point of the depression, and as measured against progress in 1933, the advancement made in 1934 and the situation at the beginning of the New Year furnish grounds for encouragement. Our banks are fortified with adequate reserves; industry can borrow at low interest rates; plans have been laid for large-scale automobile production; improved activity in steel is in evidence; late December tidings from major industrial consumers indicate a new determination to make fuller use of available resources; raw materials in factories and inventories in retail outlets have reached an exceptionally low point which can be remedied only through extensive use of labor and transportation machinery. Added to these and other factors, rich in potentialities for increased production and consumption, are a recognized need for large replacements of capital equipment, a widespread lack of adequate housing facilities, a shortage of needed items of durable goods as revealed by the Government's Real Property Inventory, and a trend toward scientific study of consumer markets. Conservatively speaking, our present gains in business activity can be expected to give momentum to a further upturn through at least the first quarter of 1935. Statistics are of little value as a basis for further conclusions. The duration of this upward movement is largely dependent upon intangible elements. Public reaction to the legislative program of the Congress soon to assemble will have an important bearing on economic progress. The results of this year's elections imply renewed confidence in the Administration's efforts, and the psychology of the moment is heartening.

RAILROADS

BY J. J. PELLEY

PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS

GENERAL

Developments of significance to the railway industry in the United States during the year 1934 were as follows:

1. A reversal of trends in traffic and earnings during the course of the year, increases reported during the first six months being offset in large measure by decreases reported during the last six months of the year.
2. Increased operating expenses due to higher level of material prices and labor costs.
3. Railway petition seeking authority to increase freight rates and charges, filed with Interstate Commerce Commission Aug. 27, 1934.
4. Activities of Federal Coordinator of Transportation.
5. The Railroad Retirement Act enacted in June declared unconstitutional by Supreme Court of the District of Columbia four months later.
6. Public Works Administration and Reconstruction Finance Corporation loans to railways.
7. Creation of Association of American Railroads.

CURRENT TRENDS IN TRAFFIC AND EARNINGS

Following the steady decline in traffic and earnings from October, 1929 to May, 1933, a period of more than three and one-half years, the railways experienced a period of 14 consecutive months of increased business and revenues. The increases fell far short of bringing the level of traffic and earnings back to anything like the level of 1929 or even 1930.

After passing the midyear point in 1934, both traffic and earnings fell below the levels of the corresponding period of 1933. Much or all of the increases recorded during the first six months were wiped out, so that for the year 1934 as a whole both freight and passenger traffic showed slight increases over 1933. Gross revenues were also slightly higher than in 1933, but net operating income decreased for the year, and the Class I railways as a whole failed to earn their fixed charges by a considerably wider margin than in 1933.

INCREASED OPERATING EXPENSES

During the first four years of declining traffic and earnings, 1930 to 1933, the carriers were able to reduce operating expenses at about the same rate as the decline in operating revenues, thus maintaining a fairly stable operating ratio. Since passing the midyear point in 1934, however, operating expenses increased in the face of decreasing traffic and revenues. Two principal reasons exist for this circumstance; first, the higher level of unit prices paid for fuel, materials and supplies, and second, the agreement with employees providing for the gradual restoration of the 10 per cent deduction from pay checks in effect since February, 1932. One-fourth of this deduction (2½% of basic pay) was restored July 1, 1934; another one-fourth is to be restored Jan. 1, 1935; the remaining one-half (5% of basic pay) will be restored April 1, 1935.

With regard to the increase in fuel, material and supply costs, the carriers found by special study that unit prices for railway fuel, materials and supplies in the Spring of 1934 were some 20 per cent higher than prices paid for the same commodities in May, 1933. It has been estimated that these increased unit prices will mean an added annual cost of about $135,000,000.

The full effect of the restoration of the 10 per cent wage deduction is estimated to cost the carriers a total of $156,000,000 annually. Combining this with the annual increase in material costs, the total increase in operating expenses will exceed $291,000,000 annually.

PETITION FOR INCREASED FREIGHT RATES

Class I carriers filed with the Interstate Commerce Commission in August, 1934 an application seeking authority to increase freight rates and charges, basing their plea on the increase in operating costs already noted. The carriers estimated that the rate increases outlined in their application would produce annual revenues of approximately $170,000,000. The proposed increase in rates, if granted, will only partially cover the recent increases in railway operating costs.

Hearings in the matter (*Ex Parte* 115) began in Washington before the Interstate Commerce Commission Oct. 1, continued at various points throughout the United States during November, and closed at Washington Dec. 8. The filing of briefs, the hearing of legal arguments, and the period necessary for the Commission as a whole to consider the matter will extend the date of decision into the early months of 1935.

PASSENGER FARES INVESTIGATION

On June 4, 1934, the Interstate Commerce Commission ordered an investigation of the passenger fares and Pullman surcharges in effect on all railroads. Hearings in the matter will begin early in 1935, and the Commission will then determine, from the evidence submitted, the reasonableness or unreasonableness and the prejudicial or non-prejudicial character of present passenger fares and surcharges on the railroads throughout the country. In recent years the railroads have experimented with reduced fares and surcharges in an effort to regain some of the traffic lost to unregulated competitive agencies. The Commission wishes to inform itself from the facts as to whether or not these experiments have been effective, whether they should be standardized, and whether or not minimum or maximum fares and surcharges should be prescribed by it.

FEDERAL COORDINATOR OF TRANSPORTATION

The Emergency Railroad Transportation Act, 1933, created for the period of one year—June 16, 1933 to June 16, 1934—the office of Federal Coordinator of Transportation. By terms of the act the President was given authority to extend the life of the office for an additional year. This was done by Presidential proclamation of May 2, 1934, continuing the office to June 16, 1935. Joseph B. Eastman, member of the Interstate Commerce Commission, remains as Federal Coordinator of Transportation.

During the year 1934, Mr. Eastman and his staff were engaged in extensive and exhaustive research into important phases of transportation in this country, for the purpose of recommending a legislative policy to the President and to Congress. In addition, the Coordinator from time to time has recommended to the railroads specific changes in operating methods and practices. These recommendations have been studied and dealt with by committees of railroad management organized to aid the Coordinator in his work.

Coordinator Eastman has made it clear, in various reports and addresses, that he will submit a number of bills to the President and to Congress during the session of 1935, looking to changes in the regulation of transportation agencies. Among other things, he will propose that Federal regulation of interstate commerce by highway carriers be set up, and that such regulation be entrusted to the Interstate Commerce Commission. He will also propose additional regulation for interstate carriers by water.

RAILROAD RETIREMENT ACT

Shortly before the close of the 1934 session of Congress, the Railroad Retirement Act was passed and received President Roosevelt's signature on June 27. The act created a Railroad Retirement Fund, to be built up from compulsory contributions by rail carriers and their employees and to be administered by a Board of three members for the payment of annuities to superannuated employees. The carriers attacked the constitutionality of the act in the courts and a decision upholding their contentions was rendered Oct. 24, 1934 by Chief Justice Wheat of the Supreme Court of the District of Columbia. The final decision in the matter will be made by the Supreme Court of the United States.

RAILROAD CREDIT CORPORATION

From its inception on Jan. 4, 1932 to May 31, 1933, the Railroad Credit Corporation loaned to railways a total of $73,691,368. No loans were made after that date, and the Corporation is now in process of liquidation. To the end of November, 1934 repayments of loans amounted to $18,256,878, leaving a balance yet to be collected of $55,434,490. As loans are repaid, periodic distribution of funds is made to individual companies participating in the Corporation, 27 per cent having been so distributed by the end of 1934.

RECONSTRUCTION FINANCE CORPORATION

Loans by the Reconstruction Finance Corporation to railway companies amounted to $284,311,271 in 1932, $109,782,987 in 1933, and $38,093,743 for the first eleven months of 1934, a total for the period of $432,188,001. Of this aggregate amount, $70,682,258 had been repaid by Dec. 1, 1934, leaving an outstanding balance due on that date of $361,505,743.

PUBLIC WORKS ADMINISTRATION

Loan allotments of the Public Works Administration to railway companies from June 16, 1933 to Nov. 30, 1934 totaled $189,000,000. Actual disbursements for that period under those allotments amounted to $133,167,000. No repayments have been made to date.

ASSOCIATION OF AMERICAN RAILROADS

Reorganization and consolidation of the Association of Railway Executives, the American Railway Association and other related bodies into a new, more compact unit, known as the Association of American Railroads, was effected during the autumn of 1934. The purposes of this organization were to effect a more unified attack upon the problems facing the industry as a whole, to promote trade and commerce in the public interest, further to improve the efficiency and economy of railroad service, and to maintain the integrity and credit of the industry.

RAILROAD PURCHASES

Taken as a whole, the railways of the United States represent probably the largest single purchaser of the products of the basic industries of the country. They use or consume annually about 25 per cent of the total bituminous coal production and, in addition, about 5 per cent of the total anthracite coal production in the United States. Their other requirements include about 20 per cent of the total timber cut of the country and approximately 17 per cent of the total iron and steel production. Fuel purchases of Class I railways in 1933 amounted to $180,526,000; their direct purchases of forest products totaled $42,442,000; expenditures for iron and steel products aggregated $110,720,000; miscellaneous items amounted to $132,162,000; the grand total was $465,850,000. In normal times, annual railway purchases of material and supplies exceed $1,250,000,000.

STATISTICS OF OPERATION

The tables (page 504) list the more important statistical items of railway operation in 1929, 1932 and 1933. Data for the full year 1934 are not yet available, but the latest monthly statistics are shown where possible, with comparable figures for the corresponding period of the preceding year. All the statistics given relate to Class I carriers, excluding switching and terminal companies. Railways of Class I are those whose annual operating revenues are $1,000,000 or more. Such roads operate approximately 92 per cent of the total railway mileage of the country and annually earn about 97 per cent of total rail revenues.

RAILROAD OPERATING STATISTICS

Year	Average number of road miles operated	Number of locomotive	Average tractive power per locomotive (lbs.)	Number of passenger cars	Number of freight cars	Average capacity per freight car (tons)
1929....	241,584	57,571	44,801	52,259	2,306,804	46.3
1932....	241,519	53,316	46,299	49,353	2,172,414	47.0
1933....	240,624	50,802	46,916	46,510	2,061,233	47.5
1934....	*239,209	....	....	....	....	....

* Ten months.

Year	Property Investment				Gross capital expenditures
	Roadway and equipment	Materials and supplies	Cash on hand	Total property investment	
1929.......	$24,884,674,485	$470,072,929	$515,375,569	$25,870,122,983	$853,721,000
1932.......	25,528,102,616	316,491,659	307,566,057	26,152,160,332	167,194,000
1933.......	25,344,126,022	291,291,349	305,752,532	25,941,169,903	103,947,000

Year	Employment and Wages			Revenue Freight		Number of revenue passengers carried
	Number of employees	Aggregate compensation	Average hourly compensation (cents)	Carloadings (number)	Ton-miles	
1929..	1,660,850	$2,896,566,351	66.6	52,827,925	447,321,561,129	780,468,302
1932..	1,031,703	1,512,816,147	63.6	28,179,952	233,977,008,859	478,800,122
1933..	971,196	1,403,840,833	62.9	28,960,910	249,223,180,347	432,979,887
1933..	....	....	....	[2]27,132,412	[1]183,904,000,000	[1]321,315,741
1934..	[1]1,017,354	[1]1,140,308,217	[1]63.1	[2]28,681,633	[1]201,892,785,000	[1]337,941,790

[1] Nine months.
[2] Eleven months.

Year	Revenue passenger miles (number)	Revenue		Average Receipts		Total operating revenues
		Freight	Passenger	Per ton-mile (cents)	Per passenger mile (cents)	
1929..	31,074,134,542	$4,825,622,121	$873,564,246	1.076	2.808	$6,279,520,544
1932..	16,971,044,205	2,450,829,130	377,095,346	1.046	2.219	3,126,760,154
1933..	16,340,509,724	2,492,678,146	329,341,830	0.999	2.013	3,095,403,904
1933..	[1]12,045,874,000	[2]2,091,303,068	[2]275,057,998	[1]1.006	[1]2.033	[2]2,592,578,825
1934..	[1]13,578,427,000	[2]2,225,483,890	[2]289,358,556	[1]0.983	[1]1.918	[2]2,756,973,534

[1] Nine months.
[2] Ten months.

Year	Total operating expenses	Operating ratio (per cent)	Tax accruals	Net railway operating income	Rate of return on property investment (per cent)	Net income
1929..	$4,506,056,262	71.76	$396,682,634	$1,251,697,938	4.84	$896,806,611
1932..	2,403,444,895	76.87	275,135,399	326,298,008	1.25	[2]139,203,821
1933..	2,249,231,779	72.66	249,623,190	474,295,613	1.83	[2]5 862,836
1933..	[1]1,870,595,232	[1]72.15	[1]220,894,173	[1]398,823,841	[1]1.77	[2,3]36,983,675
1934..	[1]2,048,849,186	[1]74.32	[1]209,389,781	[1]391,234,825	[1]1.75	[2,3]37,065,314

[1] Ten months.
[2] Deficit.
[3] Nine months.

HIGHWAYS

By Thomas H. MacDonald

Chief, Bureau of Public Roads, Department of Agriculture

VOLUME OF ROAD CONSTRUCTION

The volume of road construction supervised by the Bureau of Public Roads in the fiscal year ended June 30, 1934, far exceeded the volume of work of any past year. This increase was due primarily to grants for road construction under the National Industrial Recovery Act. The roads built have been sections of the Federal-aid highway system, extensions of the system into and through cities, important secondary or feeder roads, and sections of main highway through the national forests, parks, and public lands.

EMPLOYMENT

Increase.—Employment has been increased materially through this highway work. The 1934 monthly employment, never less than 111,211 in August, 1933, before the effect of the work under the National Industrial Recovery Act had been felt, reached in June, 1934, a maximum of 336,414, when the new public works program was well advanced. The average employment was 176,730 men throughout the year. These figures represent direct employment on the road only and do not include the indirect employment provided in the production and transportation of materials and equipment used in the construction work. The indirect employment for 1934, conservatively estimated at 1.4 times the direct, was approximately 5,000,000 man-months. Pay rolls show more employment on the roads than indicated by the continuous work figures of 2,120,761 man-months consumed on Federal road projects. Individuals directly employed throughout the year average nearly 250,000.

Federal Aid Factors.—Federal and Federal-aid road construction employment supervised by the Bureau has constituted an increasing proportion of the total employment. In 1932, the Federal work was about a fourth of the total program; in 1933, the proportion was about one-third; in the fiscal year ended 1934, nearly one-half the total number of workers. Employment being the paramount motive of the Recovery Act, conditions were imposed upon the expenditure of public works appropriations which had the effect of increasing the amount of human employment per unit of expenditure. Another result of these conditions was the wide distribution of benefits in approximate relation to the employment need. Included in these conditions was the requirement that whenever practicable and consistent with sound economy and public advantage it was required that work be done by human labor instead of machinery. However, there was a studied effort to avoid so great an abandonment of machine methods as would seriously jeopardize the highly efficient and important road machinery industry. By requiring a reasonable minimum of expenditures on extensions of the Federal-aid highway system across cities, the city unemployed were offered work opportunities. Also a similar requirement assigning funds to secondary or feeder roads insured the direct employment of local labor.

Hours and Wages.—Limiting the hours of employment had the effect of increasing the number of individuals employed. An effort was made to increase the hourly wage by requiring the various state highway departments to establish minimum rates of wage sufficient to provide, in consideration of conditions, a standard of living in decency and comfort. Local agencies of the Federal Employment Service were used in the selection of men in accordance with the preferences required by the act.

Scope of Employment. — Road building projects were required in not less than 75 per cent of the counties of each state under the rules and regulations issued with the approval of the Special Board for Public

Works. This diffusion of the employment opportunity was realized and exceeded. Some highway employment was provided, using funds appropriated by the National Industrial Recovery Act, in 86 per cent of the total number of counties in the United States. In a number of states work was provided in all of the counties.

FUNDS FOR ROAD BUILDING

Appropriations. — Funds for road building supervised by the Bureau of Public Roads were appropriated by a number of different acts of Congress. Unexpended balances of Federal-aid appropriations supplied a diminishing portion of the program. Work provided for by the National Industrial Recovery Act increased rapidly during the year. These were the larger classes of work. Other classes, smaller in volume, more restricted in location, but nevertheless locally important, were the improvement of national-forest highways, national-park highways, and highways through the public lands of the United States. The national-park highways were constructed by the Bureau with funds provided by the Interior Department. Two other classes of work developed during the year, both outgrowths of the recovery legislation. These were the work relief projects to provide quick and specialized relief in a number of states in which unemployment conditions were particularly acute, and the loan and grant projects which, after approval by the Public Works Administration, were placed by that body under the supervision of the Bureau.

State Apportionments. — Federal-aid funds paid to states during the fiscal year 1934 amounted to $42,291,937, and emergency construction funds similarly paid amounted to $55,669,145, being balances due to June 30, 1934. Public works highway funds assigned to the various states amounted to $394,000,000 divided so that not more than 50 per cent of the funds apportioned to any state should be applied to projects on the Federal-aid system outside of the corporate limits of municipalities, and not less than 25 per cent to projects on extensions of the Federal-aid system into and through municipalities, the balance (not more than 25 per cent) to be applied to secondary or feeder roads, all with certain exemptions required by existing conditions.

HIGHWAY PROJECTS

Completed Mileage. — Federal-aid roads completed in the fiscal year, 1934, amounted to 14,780 miles, the larger part of the completed mileage, built at a total cost of $237,972,675 including $84,592,580 paid from Federal-aid funds and the balance from Federal emergency and state funds. By classes of construction, these roads were divided as follows:

Roads	Miles
Graded and drained	3,398
Sand clay, treated and untreated	593
Gravel, treated and untreated	3,455
Macadam, treated and untreated	590
Low cost bituminous	1,926
Bituminous macadam	169
Bituminous concrete	439
Portland cement concrete	4,062
Block	44
Bridges and approaches	104
Total	14,780

The total mileage improved with Federal-aid from the inauguration of the policy in 1916 to the end of the fiscal year 1934 was 119,712 miles, not including certain mileage changes due to relocation and other factors. The total mileage in the Federal-aid system was 207,231; and more than half of it has been improved with Federal aid.

Construction Progress.—Work on the first public works highway project to be approved was begun Aug. 5, 1933. In the course of the year construction was begun on 20,660 miles of road and completed on 6,986 miles, leaving 13,674 miles under construction on June 30, 1934. In addition, 1,718 miles had been approved for construction, so that the year's active program totaled 22,378 miles. Of the 13,674 miles under construction at the end of the fiscal year 1934, 6,949 miles were on the Federal-aid system outside of municipalities, 1,120 miles on extensions of the system into and through cities, and 5,605 miles on secondary or feeder roads.

Relief Work.—Relief authorities recognizing the advantage of highway work in providing useful work arranged with the Bureau, cooperating with the various state highway departments, to suprevise relief road work on 209 projects undertaken at a cost of $22,213,825.

Financing. — Highway projects financed by the Public Works Administration through loans and grants were transferred to the Bureau of Public Roads by the Public Works Administration late in the year. The tentative allotments of funds for these projects amounted to $24,615,107.

Elimination of Traffic Hazards.—Traffic hazards have been eliminated by the separation of railroad and highway grades at crossings, the relocation of highways, widening existing surfaces, easing of curves and grades, the lengthening of sight distances, and other marked betterments. At railroad-highway intersections, 70 structures separating the grades were completed and 226 other similar grade separations were under way at the end of the fiscal year. Seven highway highway-grade separations were completed and 29 under construction at that time.

Improvements.—Roadside improvement has been required with at least 0.5 per cent of each state's apportionment of public works funds, amounting to a minimum of $2,000,000 for pioneer work toward the ultimate elimination of unsightly roadside conditions. Other major objectives of the program of the past year, subject always to the primary employment purpose, include the closing of remaining unimproved gaps in the Federal-aid highway system, and the provision of road facilities to aid in the better coordination of transportation, especially roads to local railroad stations and roads that will be capable of taking over the service heretofore rendered by nonpaying railroad branch lines. During the past year improvements were constructed on 938 miles of the forest-highway system, bringing the total mileage improved to date with Federal funds to 5,868 miles. Work was in progress on June 30, 1934, under the supervision of the Bureau of Public Roads on 1,089 miles of road at a total estimated cost of $12,207,568.

National Park Road Construction.—In the national parks the Bureau built for the Interior Department 157 miles of roads during the year making a total of 831 miles thus far improved. The work of the Bureau in park-road construction for the National Park Service has been greatly expanded and over $20,000,000 has been appropriated for road construction in the national-park areas.

Public Lands.—Progress was made under authorization of four Congressional acts toward the construction of roads on Federal public lands other than forests. Practically all of the $9,875,000 appropriated for such work has been obligated to various projects in the states containing these lands.

The Inter-American Highway from Panama to the United States, a report of a reconnaissance survey of which was transmitted to the State Department, will be further surveyed and initial construction begun under an authorization of $1,075,000 by Congress in June, 1934.

RESEARCH AND SURVEYS

Research in traffic, in highway management economics, and in materials of construction has been continued by the Bureau during the past year. Traffic surveys were made in Indiana, New Jersey, Florida, Connecticut, and Arkansas and numerous other studies made on safety, taxation, and traffic capacity. Highway accounting methods, costs of work on relief projects, and studies in concrete mixtures were included in management studies. Bituminous materials, subgrades and other elements of the materials entering into road building were among the subjects for research investigation.

THE MOTOR BUS INDUSTRY

By Carl W. Stocks

Editor, *Bus Transportation*

BUS TRAFFIC

Volume.—Traffic improved on bus lines during 1934. It is estimated by the magazine *Bus Transportation* that 405,000,000 people rode buses operated over intercity and interstate routes, and that on city and suburban routes 1,761,200,000 passengers were carried. The intercity total is the highest since 1930 and the city total is an all-time record. Bargain fares on intercity lines helped to swell the traffic volume for that type of service, while greater use of buses in place of city street-car lines accounted in large part for the steady increase in local patronage.

Revenue. — While intercity companies did a comparatively large volume of business, in proportion to the number of people carried, gross revenues were less than would have been the case a few years ago, due to reduced rates which many carriers were forced to effect to compete with extensive fare cuts by railroad carriers. The possibilities for profit were still further reduced by increased operating costs resulting from NRA provisions. Thus, despite an upswing in gross revenues for the industry as a whole, the majority of companies failed to make a profit. There has been little if any increase in the number of companies operating in interstate service, since, under provisions of the Motor Bus Code, inauguration of new routes is prohibited unless state certificates of convenience and necessity are issued, which subsequently must be registered with and approved by the Motor Bus Code Authority. Intrastate routes, however, show a small increase in mileage and a small number of new certificates granted, all of which indicates a trend toward saturation in intercity and interstate service under present economic conditions.

EXPANSION IN CITY BUS SERVICE

General.—In the field of city bus operation, however, bus service during the past year expanded rapidly, due mainly to the accelerated trend toward the replacement of street car service with bus routes. Entire city systems have been changed over to rubber-tired transportation and in other cases many partial substitutions have been effected. Trenton, N. J., Springfield, O., San Antonio, Tex., Joliet and Aurora, Ill., Elkhart, Ind., Northampton, Mass., Troy, N. Y. and Staten Island, N. Y., are but a few examples of places where buses completely superseded street-car lines during 1934.

New York City. — Perhaps the most outstanding example of partial substitution was in New York City. Here buses will in the early part of 1935 take the place of street cars on Madison Avenue. Franchises have been granted to other lines in Manhattan and for some 25 routes in Queens and Nassau Counties. With these operations in full swing the total number of buses in the New York metropolitan area will approximate 2,500 vehicles. For the year ended June 30, 1934, the Transit Commission placed the total number of local bus passengers carried within New York City at 315,000,000, an increase of 35,000,000 passengers over the total for the previous twelve month's figure.

Financing. — Thousands of new buses were placed in service during the year either to replace obsolete vehicles and/or, in the case of city service, to expand existing facilities. In fact, 1934 was the best buying year since 1930. In the city field alone, it is estimated not less than 1,500 new vehicles went into service. The fact that bus companies in a year of great economic uncertainty were able to obtain financing for the investment of many millions of dollars in new equipment without Government aid, is proof that credit agencies have confidence in the stability and future of motor bus operations. In addition to purchase of new rolling stock, several millions of dollars were invested in new garages and shops and in new and rebuilt terminals and other passenger conveniences.

INCREASE IN BUS OPERATION

Companies and Mileage. — The magazine *Bus Transportation* estimates there are now 5,075 motor carriers operating buses in the United States. This total includes all types of revenue operations, of which 4,000 companies are in intercity service, 825 companies operate in city, suburban and other local routes, and 250 are in sightseeing, livery and other miscellaneous services. There are now approximately 378,400 miles of bus route, of which intercity and interstate operations account for 360,000 miles and city and suburban services for 18,340 miles. In addition to these services, consolidated schools utilize 65,000 buses to carry pupils to and from their classrooms. Of this group a very large proportion of the buses are owned by school districts, although private contractors furnish several thousand of these vehicles.

Railway Subsidiaries.—While the bulk of the bus companies in intercity service are independent operators, 65 steam railroads are operating buses through wholly owned subsidiaries as adjuncts to their rail services. This does not include those carriers that have a minority financial interest in or have contractual relations with independent bus companies. There are 210 street railway companies operating 11,000 buses in addition to their regular street car lines, usually through subsidiary bus companies. The industry gives employment to approximately 90,000 people and has an investment of about $400,000,000 in plant and equipment.

Passengers and Revenues.—It is estimated by *Bus Transportation* writers that 405,000,000 passengers were handled by the intercity group of carriers during 1934. City bus companies transported 1,640,000,000 passengers, while suburban bus companies carried 121,200,000 and sightseeing and livery services about 15,000,000. In all types of passenger services, excluding school buses, revenues are believed to have totalled $370,420,000, of which $240,000,000 was taken in by intercity carriers and $123,830,000 by the city and city-and-suburban groups of carriers.

BUS TAXATION

High operating costs and low fares were not the only handicaps under which bus companies labored during the year 1934. Their tax bill reached a total of $43,331,000, according to preliminary estimates. Of this tax bill, the intercity carriers paid $31,050,000, while city and suburban bus companies paid $11,291,000. Analysis reveals that an average tax of $1,172 was paid on each bus operated by an intercity company during 1934, while city and suburban companies were taxed an average of $670 per bus. Yet some critics of the industry still maintain that bus companies do not contribute their share of the cost of highway upkeep and maintenance. Shortage of funds for the maintenance of existing highways is better laid, at least in part, to the increasing trend toward diversion of highway tax funds to other purposes than the building and upkeep of the highway system. According to the U. S. Bureau of Public Roads, ''approximately 9 per cent of the revenue derived from state motor-vehicle and gasoline taxes in 1932 was diverted to uses not relating to roads and highways. The principle items of diversion include payments to general funds of $39,652,339; to unemployment relief $19,546,456; and to schools $14,522,113.'' Government figures are not available, but the American Petroleum Industries Committee estimates that diversions jumped to nearly $100,000,000 in 1933.

LEGISLATION

The most important legislation affecting the bus industry last year was that enacted at the emergency session of the State of New York, which passed laws to bring practically all phases of the motor bus industry under the same strict supervision. Until the past year only a part of the buses operating over the streets and highways of the state were under regulation, *ie.*; only buses operated under certificates of convenience and necessity from the New York Public Service Commission, and buses franchised to operate on city routes, actually were regulated by the State of New York. With the passage of the new laws, and the promulgation of enforcement rules by the Public Service Commission, all types of service, including sightseeing, livery and for hire, and other miscellaneous carriers operating vehicles of more than 7-passenger capacity, are supervised as to the mechanical condition of equipment and are required to carry stated amounts of insurance for the protection of passengers. Buses operated in New York State now must be inspected by representatives of the Commission at least three times a year and must at all times be maintained to meet the mechanical requirements laid down by the Commission. Similar requirements are enforced within the limits of New York City by the Transit Commission. General sentiment toward the new rules is favorable, although some of the provisions are regarded as too severe. Responsible bus men, however, long have urged equitable regulation of the industry, and it is no small part due to their efforts that buses on intrastate routes now are closely regulated in 47 states either as to fares, mechanical equipment, insurance or other factors in which the public has an interest.

INTERSTATE REGULATION

Interstate bus operations still are unregulated excepting in so far as they are governed by the police laws of the various states through which the lines operate or by provisions of the NRA motor bus code. But sentiment for enactment of Federal regulation governing interstate motor bus operations at the next session of Congress is gaining momentum. Here, again, bus executives have long urged Federal regulation of interstate business, which they believe would be of benefit not only to the public but would safeguard operating companies from uneconomic competition. It was at first believed that NRA might effect a high degree of self-regulation in the industry. This hope has not been completely realized, and most bus men now believe that adequate and permanent regulation by a properly constituted Federal body is needed. Some years ago when Federal regulation of interstate business was first proposed it was suggested that this be effected through the medium of joint boards of individual state commissioners. While this plan might have suited conditions in existence ten years ago, when all motor carrier operations were short disconnected local enterprises, it does not fulfill the need of today. Instead, a central control board is urged and it is believed that such a plan would be less burdensome and would result in fewer administrative delays. Joseph B. Eastman, Federal Coordinator of Transportation, is conferring with the industry in an effort to effect a plan that will be acceptable to all concerned.

BUS DESIGN AND EQUIPMENT

To any citizen who travels the highways or who observes bus equipment as it rolls through his city, it is obvious that there have been great improvements in recent bus design. The most noticeable change, of course, is in the streamlining of the bus body, but modernization of body design is only the outward evidence of the many improvements and changes which have taken place in the mechanical equipment of buses, all with the view toward building a more efficient and safer vehicle, which can be operated at a lower cost. The so-called ''transit type'' vehicle is most popular now in city service. In this type vehicle the power plant is placed beneath the floor or at the rear of the vehicle instead of in the conventional position under a hood at the front. By following this design greater seating capacity is gained within the same overall vehicle length, easier ingress and egress from the vehicle is afforded to passengers, and there are other advantages from a purely operating viewpoint.

A few months ago 31 types of buses were displayed at an exhibition of bus products held in Cleveland. Of these 31 types, only 5 had the engine under a hood in the conventional position in front of the body, and each of these five buses was designed primarily for intercity travel. The balance had the engine concealed in or beneath the body and while designed primarily for local transit operations vehicles of this type are now being modified for long-haul service. Some believe that within the next few years even in long-haul service the hooded bus will lose its popularity. Of the 26 ''transit type'' buses shown at Cleveland, 14 had vertical engines at the front and within the body shell; seven had horizontal engines placed in the middle of the vehicle and below the floor, four had transverse engines at the rear, and one model had the engine longitudinally mounted inside the body at the rear. The application of diesel engines to bus equipment, a mono-transmission that shifts gears automatically, and better braking systems are among the other improvements incorporated in the bus models by manufacturers of bus equipment during 1934.

Great improvements have been made in insulating the body interiors against engine heat and noise. All-metal construction is standard with most manufacturers, and does much to eliminate fire hazard. Safety glass is being widely used for windshields, rear corner windows and doors and is furnished all around if required by the purchaser. Experiments in the air conditioning of bus equipment are under way and this convenience may become an actuality during 1935.

THE OUTLOOK

As for 1935, the indices if left alone are favorable, but with a 30-hour work week looming, and also unemployment insurance, old age pensions, and labor domination by foreign dictum, each of which can seriously affect and perhaps change the economic fabric of the nation, it is difficult to make a sound advance appraisal of the year 1935. Although the possible margin of profit under present day conditions is small, bus men hope that the volume of business will be sufficient to compensate for this deficiency. They are hopeful that Federal regulation of interstate service, if and when enacted, will help further to stabilize the industry by curbing uneconomic competition. They believe travel will continue to increase during 1935 and, despite adverse factors, they are hopeful that the coming year will exceed the records of 1934.

COMMUNITY TRANSIT

By John A. Miller

Editor, *Transit Journal*

GENERAL

Notable recovery was made by the transit industry during 1934. Gross revenue for the industry as a whole increased from about $1,030,000,000 in 1933 to about $1,100,000,000 in 1934, a gain of approximately 6 per cent as compared with a decrease of 7 per cent for the preceding year. During the early months of 1934 the rate of increase ran as high as 12 per cent but it tapered off to about 1 per cent at the close. The explanation of this variation in the percentage of improvement over the preceding year lies in the fact that transit revenues were fairly stable throughout 1934, whereas in 1933 they varied from an extreme low in the first half to a substantially higher level in the second half of that year.

From the standpoint of passengers carried, a slightly greater improvement was made during the year, the increase being from about 11,600,000,000 in 1933 to about 12,700,000,000 in 1934, a gain of approximately 10 per cent. The relatively greater improvement in riding is explained by a small reduction in the average rate of fare due to the establishment of various special bargain rates designed to attract a substantial volume of additional patronage without necessarily producing an equal volume of additional revenue.

FARES

Numerous experiments were made in this endeavor to attract additional patronage. Experience at Baltimore during a 30-day test period early in the year showed that a straight reduction in fare from ten cents to seven and a half cents failed to produce enough additional riding to offset the smaller amount paid by each passenger. While this experiment was not a success, experience in other cities afforded evidence that fare reductions can sometimes be arranged to produce advantageous results. During the year many combination rates were established—special off-peak fares, weekly passes, etc. to supplement the base rate. In a number of instances the establishment of these combination rates was followed by increases in both riding and revenue, as was notably the case in Washington, D. C. To what extent the improvements were the direct result of the fare changes, and to what extent they were the result of improvement in general business conditions, cannot be accurately determined. For the industry as a whole the fare index dropped from 163.1 to 162.1 based on 1913 as 100. Measured in cents the decline was from 7.86 to 7.82.

LABOR AND WAGES

In contrast to the decline in the fare index there was a marked rise in the wage index from 205.5 to 213.9 the 1913 average again being taken as a base of 100. This increase was partly the outcome of an effort to restore previous wage cuts and partly the outcome of a desire to maintain the weekly earnings of the individual worker at the same level, while reducing the number of hours worked per week. The most notable instance of the last-mentioned policy was witnessed at Pittsburgh where a Board of Arbitration decided that the work week for transit employees should be reduced to five days and wages increased about 20 per cent. The result of this decision was to add considerably to the operating expenses of the company, and it remains to be seen whether sufficient revenue can be obtained to carry the added burden.

In general the relations between management and labor remained friendly and tranquil during the year. Occasional disturbances occurred, however, a few being of a rather serious nature. To a considerable extent such disturbances as occurred was the outgrowth of attempts of labor organizers to unionize the employees of non-union properties. In numerous instances controversy arose because of the discharge of unionized employees, the union officials contending that, in violation of the Transit Code and Section 7-A of the National Industrial Recovery Act, these employees were discharged on account of their membership in the union, and the managements contending that they were discharged for infraction of rules or other justifiable causes. Some strikes were called, accompanied by a certain amount of violence, but most of them were of relatively short duration.

Questions pertaining to Section 7-A were the most spectacular feature of the operation of the Transit Code during the year. No changes were made in the code provisions, though exemptions were granted in certain instances where the code authority deemed them justified by local conditions.

CAR DESIGN

Remarkable progress in car design was shown during the year. To a large extent this progress was the outgrowth of the work of the Electric Railway Presidents' Conference Committee, formed four years ago for the purpose of developing a vehicle suited to modern needs. The first fruits of that endeavor were seen in two demonstration cars delivered to the Chicago Surface Lines in June. While not built strictly according to the designs developed by the Presidents' Conference, these cars nevertheless embodied a number of the important principles thus established. In September the Presidents' Conference brought out its own model car which was later placed in experimental operation in Brooklyn. All of these cars have rapid acceleration, high running speed and rapid deceleration. To accomplish this they are provided with motors of liberal capacity, specially developed automatic control and a variety of brakes.

Elimination of noise is an outstanding feature. Rubber cushioned wheels absorb shock originating from any unevenness of the track. Rubber inserts at key points in the truck framing also absorb shocks and damp the vibration of metal parts that would otherwise produce harsh and unpleasant noises.

From the standpoint of the passenger the use of rubber cushions greatly improves the riding qualities. Improved heating and ventilating devices have also been installed. Special attention has been given to illumination.

With respect to the development of a rail vehicle that can compete effectively with the attractions of automotive transportation the designers of these cars are recognized as having done an outstanding job. The opinion of the industry is virtually unanimous that the new cars possess performance characteristics far in advance of those for any previous electric rail cars. At present the critical problem is that of manufacturing cost. Ways must be found to simplify the present complicated equipment and to reduce the cost to a figure which the railways can afford to pay. In the final analysis the extent to which the new designs are adopted and used by the industry will depend very largely on their first cost and their maintenance cost.

IMPROVEMENTS AND MAINTENANCE

Car construction lagged considerably behind car design. Besides the three experimental cars to which reference has been made, one experimental car was built by the Department of Street Railways of Detroit, two experimental rapid transit units were purchased for elevated railway service in Brooklyn, and two lots of street cars were bought. One order for 15 street cars was placed in the early months of the year by the Indianapolis Railways and another for 20 cars was placed at the close of the year by the Capital Transit Company, Washington, D. C. Neither of these orders involved cars of the Presidents' Conference Committee design, though the specifications of the Washington order were for cars embodying a number of P. C. C. features.

Despite the lack of car orders the total expenditures of the industry for improvements, extensions and maintenance in 1934 were about $200,000,000, or more than 10 per cent above those for 1933. Primarly this increase was a reflection of the generally improved conditions of the industry. To some extent it was also a reflection of the continued steady growth of bus operations by community transit companies. Some 2,000 new buses were bought by the industry in 1934 at a capital cost of $18,000,000 as compared with 1,200 in 1933 at a cost of about $10,000,000.

BUS DEVELOPMENT

Comparison of the number of new electric rail cars bought in 1934 with the number of new buses bought by the transit industry during the same period is a clear indication of the constantly increasing importance of the bus. Despite its remarkable development in recent years, however, the bus does not as yet approach the electric railway as a means of handling mass transportation. On the property of the Connecticut Company, for example, the relation of route mileage to street railway track mileage is about three to two, while the ratio of the fares collected on the buses to those paid on the street cars is the reverse. The buses operate over the greater mileage of route, but since this route is largely of an interurban or auxiliary nature the bulk of the company's business is still done on the street cars.

The general feeling of the transit industry in the larger cities is that the electric rail car is still the most efficient vehicle for handling mass transportation. In the smaller communities, however, there is a definite trend toward substitution of rail-less vehicles. In Trenton, N. J., the local transit company has announced its plans to go to all-bus service early in 1935. From the standpoint of size Trenton will be the second largest all-bus city in the country, being exceeded only by San Antonio, Tex., which made a complete change-over in 1933.

At Pawtucket, R. I., a change-over was made from rail service to trolley bus service. Pawtucket thus becomes the largest city where practically all local service is given by trolley bus, Fitchburg, Mass., Kenosha, Wis. and Greensboro, N. C. all being considerably smaller. Larger trolley bus installations are in operation at Chicago and Indianapolis, but there they are parts of co-ordinated rail and rail-less systems.

An interesting development of the year was the design of a so-called "all-service" vehicle by the Public Service Co-ordinated Transport of New Jersey. This is a combination motor bus and trolley bus. The wheels are driven by electric motors. Power may be obtained from an automotive engine generator set or from overhead wires through a pair of trolley poles at the will of the operator.

RAPID TRANSIT

Few outstanding developments took place in the field of rapid transit during the year. The city-owned independent subway system in New York opened up several additional miles of route which had been under construction for a number of years. Plans were made and construction work started on a rapid transit line over the Delaware River Bridge to connect the Philadelphia subway with the adjoining city of Camden. Plans were made also for rapid transit service over the Trans-Bay Bridge which will connect San Francisco with the East Bay cities. Both of these projects, however, are still some distance away from commencing operation.

From an engineering standpoint considerable interest centered in two new five-body articulated units built for the elevated railway lines in Brooklyn. One unit was built largely of aluminum, while the other utilized stainless steel construction. In both instances the total weight was substantially reduced from that of present units of usual carrying capacity. Numerous other improvements were incorporated in the design of these new Brooklyn vehicles.

FUTURE PROSPECTS

Indications are that the progress toward recovery made by the transit industry during 1934 will continue during 1935. The rate of this progress, however, cannot be forecast accurately. To a large extent the patronage of transit service and the revenues accruing to the operating companies depend upon the condition of general business and industry. With prospects favorable for improvement in general business, the transit industry is in a position to continue the progress made during 1934.

THE MERCHANT MARINE

By Peter Bain

Consulting Naval Architect

FAVORABLE AND ADVERSE FACTORS

In the opinion of ship operators, our merchant marine came through 1934 in rather better shape than anticipated when the year opened. A substantial upswing in foreign trade in both quantity and value contributed in great measure to offset a number of more or less irritating handicaps to which the industry was exposed and from which at the year end it was not altogether immune. Chief among the handicaps referred to were uncertainties resulting from attempts to draft a shipping code; unsatisfactory, because erratic, condition of foreign exchange; government investigation of ocean mail contracts; longshoremen's strike on the Pacific Coast, and threats of a general strike of seamen at Atlantic Coast ports. Fortunately, the Pacific Coast strike was speedily ended and that threatened on the Atlantic Coast averted on the basis of adjusted agreements between ship lines and their employes ashore and afloat. The menace of erratic foreign exchanges, and anxiety regarding final disposition by the government of the mail contract scrutiny continued, however, as disturbing factors when the year ended. Relative to the expansion recorded in foreign trade from which our shipping derived considerable benefit, exports increased 18 per cent in quantity and 42 per cent in value, while the gains in imports were 20 per cent and 47 per cent respectively, compared with the preceding year. Depreciation of the dollar, tending as it did to increase the volume of American exports, aided at the same time American shipping; nevertheless, it had the disadvantage of increasing to a degree the cost of operation because of the higher cost of necessary supplies purchased abroad and the cost of repairs when urgency called for these to be made there.

COMPETITIVE DISABILITIES AND ACHIEVEMENTS

During the year, foreign shipping developed in up-to-dateness and volume, comparatively with the American merchant marine; thus, when Lloyd's Register of Shipping published its last report, only some 22,000 tons of new vessel construction was in process here, just 1.7 per cent of the then world total. The greater part of our foreign trade merchant vessels now average more than 15 years of service; otherwise expressed, they are to a large extent competitively out of date. If, therefore, the American merchant marine is to hold its meantime achievement in the carriage of its foreign trade, a replacement program should be initiated at once. Based on the present tonnage of American ships in foreign trade, it is computed that to enable us to carry one-third of our trade in our own ships, a new construction program annually of 150,000 gross tons will be required. The efficiency and economic value of our merchant marine are being menaced because of the failure of private ship lines to order new tonnage. In this connection it should be pointed out that rival commercial nations have enabled their respective vessel owners and operators, through the medium of broad subsidy programs, to build and keep on building competitively modern tonnage. At the beginning of the year two cargo vessels and three small tankers were under construction. The cargo carriers, each of 4,774 tons, were delivered to the A. H. Bull Steamship Company, and two of the tankers to the Standard Vacuum Transportation Company. Contracts awarded during the year were limited to two 15,000-deadweight-ton tankers and one small tanker. A survey prepared by the American Steamship Owners Association shows, however, our merchant marine to be in a somewhat improved condition comparatively with a year ago. On Oct. 1, 1933, the merchant fleet consisting of vessels of 1,000 gross tons or more aggregated 7,593,393 tons, of which 320 vessels of 1,477,074 tons were idle. On the corresponding date of 1934, the fleet totalled 7,439,261 tons, of which 260 ships of 1,098,406 tons were idle. Thus, while the fleet only decreased 154,132 tons during the year, the volume of idle tonnage was decreased 378,668 tons. Marked improvement also was shown in the tanker situation, less than 20 serviceable vessels being laid up. Notwithstanding that operating revenues still remain below the compensatory level, American shipping was carrying 36.5 per cent of the nation's export and import trade, a slight increase. The trend of passenger patronage to American flag ships continues to be maintained, one-third of the regular business and one-sixth of the tourist business being on record. American ships get only about 10 per cent of the passenger business available on the North Atlantic.

WAGE ADJUSTMENT

An important phase of the prevention of the threatened strike of seamen at Atlantic Coast ports consisted of the inauguration of a new wage scale contract with the longshoremen. This was to take effect with the new year, and called for a basic wage of 85 cents an hour with $1.25 cents an hour for overtime for coastwise shipping, and 95 cents and $1.35 repectively for deep sea craft. Agreement was also reached with the Seamen's Union for a basic wage of $57.50 for able-bodied seamen, thereby setting a standard unapproached by any other maritime nation. American shipping in foreign trade, as was perhaps natural, suffered also to a lesser or greater extent from the effects of the policies of the nations with which it traded. Thus, as a result of the failure to adopt a code as has been done by other leading industries, our shipping has been obliged to pay the higher prices sanctioned for a variety of essential service, while unable to increase its own rates. The disability was particularly felt by lines engaged in international trade.

MAIL CONTRACT REVISIONS

Towards the end of January, announcement was made by the Attorney General of a pending intensive investigation by the Department of Justice into the provisions of existing steamship and air mail contracts. Action by the Attorney General appeared to come as a climax to weeks of testimony before a special Senate investigating committee which apparently brought out numerous irregularities relative to contract provisions. Right on the heels, as it were, of the Attorney General's announcement came a statement from Secretary of Commerce Roper warning that operators with past due obligations to the Government faced cancellation of their mail contract subsidies unless corrective action was promptly taken. Mr. Roper pointed out that of $145,000,000 lent by the Government under the 1928 ship construction loan legislation, $126,000,000 was outstanding between both mail and non-mail contract operators. Of the latter figure, $40,000,000 was listed as outstanding "from companies which are in arrears, including amounts presently in arrears." Intimation also was given that a 60- to 90-day moratorium on further construction would be placed in effect pending "a general revision of credit policies, with a view to adjustment of the real needs of the shipping industry and the necessity of protecting public funds." As somewhat in the nature of a super-climax to Administration exploration of the American merchant marine position, acting Postmaster General Howes in July notified the 32 ocean mail and four foreign air mail contractors to appear at a hearing on Oct. 1, at the Post Office Department "to show cause why their contracts should not be modified or cancelled." Issuance of the notification was understood to be due to the belief that various amounts being paid could be reduced substantially without impairment of the existing service. Forty-four ocean mail routes are in the hands of 32 contractors. In 1933, ocean mail service cost $26,054,680.

GOVERNMENT PICTURED AS BENEVOLENT AGENCY

Operators of ship lines carrying mail to foreign ports were indebted to the Government to the amount of $111,366,757.68 for Merchant Marine Act loans, James Craig Peacock, director of the Shipping Board Bureau of the Department of Commerce, testified on Oct. 4 at the opening of hearings before a special Post Office Board of Inquiry into mail rates. Other witnesses pictured the Government as a benevolent agency ready to advance millions for ship-building and ship repairs and, in turn, enter into contracts with ship operators which assured a lucrative income. According to Mr. Peacock, $107,593,957.32 had been advanced for new construction and reconditioning at rates ranging from one-eighth of one per cent to 3½ per cent. Representatives of 34 operators whose vessels span world seas were present. John E. Lamiell, director of the International Division of the Postal Service, reviewing contracts made since passage of the Jones-White Shipping Act, presented figures which showed that ocean mail carrying cost the government $29,611,481.99 in the fiscal year ended June 30, 1934 and for the fiscal year ending June 30, 1935, he placed the cost at $30,909,439. The eventual cost of existing ocean mail contracts was estimated at $308,093,160. It was brought out that the Navy Department should be consulted on the 298 merchant ships operating under mail contract, with a view to their conversion into naval auxiliaries in the event of a war in which we were a combatant. A statement from Secretary of the Navy Swanson, was read to the effect that 38 selected ships could be economically converted, although the others could be used and were included in Navy Department plans. While the hearings continued until each of the operators had his day in court, so to speak, the year ended without direct announcement, either as to the recommendations of the Post Office Department as a result of the investigation, or of the substance of recommendations to be made by the President to Congress relative to merchant marine aid—whether it is to be more or less entirely different or the existing plan just modified and readjusted.

QUESTIONS OF POLICY

It may be said, however, that far-reaching changes in the shipping policy of the Federal Government are scheduled for presentation to the 74th Congress. It is known that President Roosevelt favors outright subsidies as against the equivalent ocean mail contracts. The new policy of the Administration was expected to include provisions for differential subsidies based on construction and operation. Such differentials would include adjustment of differences in costs of construction of new vessels and maintenance of both new and old ships, and wages of crews as between ours and those of foreign countries. According to Henry H. Heimann, director of the Shipping Board Bureau of the Department of Commerce in the early part of 1934, an American Merchant Marine is a necessity. In his opinion, it was readily evident why American capital did not seek employment in the shipping industry; in a word, its earnings have fallen far short of a reasonable return on the investment during the last ten years. It may be anticipated that any new subsidy policy will be gradually introduced by replacing old subsidy contracts in fairness and equity and, if possible, through mutual agreement to prevent demoralization of the shipping industry. It goes without saying, however, that the marine industry must get rid of many existing vicious practices to merit government aid and be more or less subject to government supervision of expenditures and rate structures. Rate cutting, unnecessary competition between American ship lines, extravagant expenditures and unjustifiable capital structures, have been cited as the principal evils associated with the industry's efficiency.

COORDINATION OF RAIL, WATER AND MOTOR TRANSPORTATION

Nothing came of the bill introduced in the Senate as a result of recommendations by Joseph B. Eastman, government coordinator of transportation, whereby rail, water, and motor transportation, would be regulated by a single government body. While no attempt was made to enact legislation during Congress sessions, it was abundantly evident that, among the interests concerned, opinion on the merits of the proposed bill were sharply divided, although some form of rate regulation and coordination appears essential for the successful operation of our water lines. In submitting a minority report on the subject to the Shippers Conference of Greater New York, John P. Magill of the Maritime Exchange of the Port of New York, objected to wholesale rejection of the idea of Federal control. Vessels in our coastal and intercoastal trades must virtually all be replaced within the next decade; meantime, as a result of unrestrained competition, practically all of the lines are in the red. It would be impossible today, according to Mr. Magill, to borrow a dollar to build new ships under the American flag; therefore, if we are to continue to have the benefit of these services we must support the companies that operate them. In passing, it may be stated that the same shippers' conference went on record as opposed to the proposal to base Panama Canal tolls for commercial vessels on tonnage estimated by the canal's special measurement system rather than on net registered tonnage.

SHIPPING BOARD BUREAU ACTIVITIES

By Executive order of June 10, 1933, the U. S. Shipping Board was abolished, effective Aug. 9, 1933, and its activities, including those over and touching the U. S. Shipping Board Merchant Fleet Corporation, were transferred to the Department of Commerce. At the same time, the U. S. Shipping Board Bureau, in charge of an advisory Committee of three members, was created to perform the work formerly carried on by the Shipping Board when it functioned as an independent body. The Bureau is charged with the maintenance and development of the American Merchant Marine, the regulation of carriers by water in interstate and foreign commerce and, through the Merchant Fleet Corporation, with administration of the marine insurance fund, the operation of government lines and terminals, and custody of the Government's laid-up fleet. On Jan. 10, 1934, the Shipping Board Bureau was placed under a Director who reports directly to the Secretary of Commerce. Following a thorough study of the organization on April 14, many important changes, involving a redesignation of administrative units and a realignment of functions, were put into effect. At the close of the year, as a result, the principal activities of the Bureau were carried on in the following divisions and sections: Division of Loans and Sales, Division of Regulation, Division of Shipping Research, Division of Traffic and Section of Public Information. Because the activities of the Sea Service Section were in many respects similar to certain phases of the work of the Bureau of Navigation and Steamboat Inspection, transfer was made to the latter on July 1.

Supplementing reorganization, important changes were inaugurated during the first six months of 1934, the major purpose having in view a more business-like administration of the laws relating to our merchant marine. The Government's huge investment in shipping, coupled with the Federal subsidies paid for the maintenance of essential services, placed upon the Department the obligation closely to scrutinize finances, operating methods, and business practices of American flag lines, especially of those lines that were indebted to the Government for vessels purchased or for construction loans. Thus, debtor shipowners have been required to amortize past due accounts with reasonable dispatch and to liquidate current obligations as promptly as possible. Closer control has been established over the disbursements and monies received by shipowners from operations and from the Government under ocean mail contracts. It is believed that the new policy, by introducing better business methods, has tended to strengthen the financial status of debtor shipowners while safeguarding the public interest by bringing about more prompt settlement of outstanding accounts. With its introduction of fiscal reforms, the Bureau made wider use of the regulatory powers vested in the Secretary of Commerce over the rates, fares, charges and practices of carriers by water.

CONSTRUCTION LOAN FUND

From inception of the Construction Loan Fund to June 30, 1934 inclusive, loans have been authorized to 35 steamship companies for the construction of 58 new vessels and for the conversion and/or reconditioning of 40 vessels. The authorized loans total $148,074,537.41, of which $147,605,809.41 had been advanced at June 30, 1934, leaving a balance of $468,728 to be advanced in the future. Loans outstanding at the close of the fiscal year totalled $120,719,056.38. During the fiscal year, applications for loans were received from the Northland Transportation Company, Gulf Pacific Mail Line Ltd., Waterman Steamship Corporation, Cherokee-Seminole Steamship Corporation, Proposed Atlantic-Pacific Transport Corporation represented by Angelo Conti, Equator Tuna Fishing Corporation represented by Capt. Henry Anderson.

SALES AND DELIVERIES OF VESSELS

Sales and deliveries were made of three cargo carriers of a total deadweight tonnage of 16,750, and of two barges and a motor sailing launch. Deliveries of vessels included in sales agreement of the previous fiscal year aggregated 17 of 147,392 total deadweight tons. Nine of the vessels were delivered to the Boston Iron & Metal Company for scrapping., and eight to the Lykes Bros.-Ripley Steamship Company, Inc.

During the year, 55 vessels of a gross tonnage of 100,614 were approved for sale to aliens with the privilege of transferring to foreign registry. The vessels were either small yachts considered not essential in the development of our merchant marine, or larger vessels of such age and degree of obsolescence as to be uneconomical to operate. Of the 55 vessels, 52 were scheduled for transfer to foreign registry. Three charters of American vessels to aliens were approved as were the issuance of mortgages to aliens on nine vessels documented under the laws of the United States.

DIESELIZATION PROGRAM

Activities in connection with the Diesel program consisted in the investigation and correction of defects developed during the continued operation of the vessels converted from steam to Diesel propulsion. A small staff of experts cooperating with the engine builders took care of the various requirements, the main items of which were renewal of the lower cylinder heads, main columns, cylinder liners and pistons of the *Galveston, Oldham,* and *West Grama.* Of the original fund of $25,000,000 authorized, $23,665,000 has been made available and $23,468,194.81 has been spent.

SEA SERVICE SECTION

During the fiscal year, the Sea Service Section placed 25,423 officers and men in various ratings aboard ship, 97.7 per cent of whom were American citizens. The Sea Service Section gave special attention to the manning of American ships with American crews; thus, the percentage of American citizens among the placements for the year is the highest hitherto attained.

MERCHANT FLEET CORPORATION

Numerous changes of officers and of the board of trustees of the Merchant Fleet Corporation took place during the year. At the stockholders meeting on April 17, Otto Praeger, South Trimble, Jr., James Craig Peacock, Huntington T. Morse, F. G. Frieser, L. D. Staver, and C. D. Gibbons, were elected trustees for the ensuing year. Officers designated were James Craig Peacock, president, and chairman of the board of trustees; Otto Praeger, vice chairman of the board of trustees; Admiral H. I. Cone, senior vice president; T. M. Woodward, vice president; S. D. Schell, secretary; C. D. Gibbons, treasurer; and L. D. Staver, general comptroller. The Merchant Fleet Corporation continued operation of its remaining services on the basis of minimum sailings adopted in 1932. During the year, five lines were maintained by managing operators under Operating Agreement A 1930. There were 190 voyage terminations as compared with 352 terminations during the previous fiscal year. The reduction was due to the sale of Gulf port services. It was necessary, however, to permit the purchaser of these services to carry out, under the operating agreement, 11 voyages with vessels which had been withheld from delivery by the Department under the sales agreement; thus, these voyage terminations are included in the 190 total. The five lines have been operated with a total of 38 cargo carriers at a cost of $1,870,750 to the Fleet Corporation, exclusive of administrative expense. Cost of operation in 1933 was $4,634,196. The lessened cost, comparatively, resulted both from discontinuance of the Gulf service under the Government and from lower lump sum compensation paid to three of the four managing operators. The Bureau's remaining lines operated on the basis of a stipulated sum per voyage by four managing operators are: — America-France Line, eight ships, by Cosmopolitan Shipping Co. Inc.; American Hampton Roads Line (Yankee Line Service), four ships, by Southgate-Nelson Corporation; Oriole Line, five ships, also by Southgate-Nelson Corporation; American Pioneer Line, ten ships, by Roosevelt Steamship Co. Inc.; American Republics Line, eleven ships, by C. H. Sprague & Sons Inc. Through close supervision of the operations of the lines under lump sum agreement, compensation to managing operators has been reduced to a basis more nearly in line with current financial results while still allowing a reasonable operating profit. Expense of inactive vessels was reduced from $170,503 in 1933 to $40,294 in the fiscal year 1934, the greater part of this expenditure being incurred in connection with the reconditioning of Diesel ships by the engine builders. Administration expense chargeable to operations was reduced from $681,605 in 1933 to $337,725 in 1934. During the fiscal year two cargo carriers and three salvage tugs were under bare-boat charter, one cargo carrier being chartered during the year and redelivered. Charter net earnings totalled $7,353.21. Total operating loss, including net profit from the operation and maintenance of terminals and real estate, as well as the expense of employes assigned to the United States Shipping Board Bureau of the Merchant Fleet Corporation for the fiscal year 1934, was approximately $2,200,000. This compares with an approximate loss of $5,387,000 in 1933.

MAINTENANCE AND RESERVE FLEET

Reserve fleet, maintenance and repair activities were combined in one section; as a result, administration economies were effected. There were 246 vessels in the reserve fleet at the start of the fiscal year and 234 at the finish of it. Cost of maintenance was $165,870 compared with $246,985 the previous year. Surveys were made of the condition of 422 mortgaged vessels and of 69 operated and chartered vessels. Maintenance and repair materials valued at $58,238.56 were released for issue to managing operators and $17,299.35 for emergency purposes by purchasers of Shipping Board tonnage. As of June 30, total coverage in the general insurance fund amounted to $36,927,171, of which $21,631,821 applied to 99 privately owned American flag ships and $15,295,350 represented insurance on 50 vessels operated in Fleet Corporation services. The total amount of insurance was $17,076,604 less than covered at the beginning of the year.

BUREAU OF NAVIGATION AND STEAMBOAT INSPECTION

At the close of the fiscal year, the merchant marine of the United States, including all manner of documented craft, comprised 24,904 vessels of 14,861,814 gross tons; employed in foreign trade were 3,842 vessels of 4,606,623 gross tons. The foregoing figures of our merchant fleet tonnage indicate an increase of 41 vessels and a decrease of 198,343 gross tons. Vessel crews, exclusive of masters, numbered approximately 182,000; of the total 35,224 were serving on laid-up craft. Ratification of the International Convention on Safety of Life at Sea continues to await action by the United States Senate.

LIGHTHOUSE SERVICE

Total number of aids to navigation at 23,597 showed an increase of 1,088 compared with 1933 and, this, in spite of the circumstance that 1,984 were discontinued because no longer necessary or because replaced by more suitble types. Special improvements designed to secure greater efficiency consisted in changing 92 lights from fixed to flashing or occulting; changing of the illuminant of 119 lights to electric, and 41 lights to acetylene. Two new radio beacons were established, bringing the total in service up to 105. Three new tenders were completed, a fourth was under construction and placement of the contract for a fifth was pending. While no additional lightships were constructed during the period, two were extensively reconditioned. Two lightship stations were discontinued. At the year end, 58 tenders were in commission, inclusive of two laid up in reserve. Twenty-nine of the tenders are equipped with direction finders and 33 have radio communication apparatus. Lightships were maintained on 35 stations and 49 were in commission. Nantucket Lightship, *No. 117* was sunk on May 15 through being run down by the White Star liner *Olympic,* inward bound during a fog.

SEA SAFETY LAWS

On Oct. 23, as a result of the *Morro Castle* disaster which took a toll of 132 lives in September, three major maritime reforms were formulated in government circles. These were fireproofing of all vessels, practical examinations for able-bodied seamen, and revision of the law limiting the liability of shipowners. It is not believed that fireproofing of all passenger ships would entail a prohibitive cost. As at present operative, sailors may become able-bodied seamen after three years apprenticeship through the mere filing of an affidavit. It is suggested that the apprenticeship term be supplemented in future by having all applicants submit themselves to a written, practical examination. Such a supplementary test, it is contended, would produce a more able and disciplined crew and one, therefore, more ready to meet and cope with emergencies. It is contended also, that if vessel owners were subject to unlimited liability they would be spurred on to provide not only the safest-type ships but, as well, the most capable and efficient crews. Two results of the *Morro Castle* disaster materialized before the year end. Members of the New York City Fire Department, who have been retired after 20 years of service and wished to continue their work, were being assigned to merchant marine vessels to help control fire hazards and direct firefighting forces, under a plan prepared by Commissioner John J. McElligott. Men so assigned, two to a vessel, become employees of the ship line as chief petty officers. They are responsible only to the captains of their respective vessels, for patrol of their charge daily from 4 P. M. to 8 A. M. at sea and in port, inspecting hose, checking water pressure, examining fire extinguishers, and other allied duties. They will have uniforms that will readily identify them. Result number two of the *Morro Castle* tragedy was the allocation of naval officer observers to a batch of our leading merchant marine fleet units. A noteworthy outcome of this move was the circumstance that Secretary of Commerce Roper at the year end sent out a sheaf of letters to the masters of merchant ships on which naval officers had voyaged as observers and reported in his communication that discipline and operation had been found generally satisfactory. In each instance, Mr. Roper extended congratulations, adding that "vessels flying the flag of the United States must be second to none in regard to all those conditions that assure the safety of the travelling public." The naval officers work in cooperation with the U. S. Steamboat Inspection Service.

TRANS-OCEAN DIRIGIBLES

On Oct. 30 declarations were made before the Federal Aviation Commission that the time had come for the United States to give serious consideration to the building of a lighter-than-air commercial service. Added interest was aroused because of the fact that Rear Admiral H. I. Cone, executive vice president of the Shipping Board, asserted that it was unwise for the United States to enter the race for merchant marine speed records. He claimed that it would cost 50 per cent more to build a ship of the Cunard-White Star *Queen Mary* type in this country than in Europe, and that the same amount of money would pay for five trans-ocean dirigibles, besides providing them with terminals. "The thing for us to do," he continued, "is to go into a program of world air traffic with dirigibles, placing them on all trade routes. It is the one place for us to attain supremacy in international trade.'' E. P. Farley, a former chairman of the Shipping Board, saw ''no possibility of this country successfully competing in the building of so-called super-liners of the *Queen Mary* and *Normandie* (French) types.'' He saw nothing but the air at the moment, our shipping business to date being very largely written ''in the red.'' Proposal to span the seas with American-built, owned and operated lighter-than-air ships is understood to have taken definite form soon after Mr. Roosevelt became President. Preliminary investigations and surveys made indicate ultimately an around-the-world mail and passenger service and, primarily, two large airships for transatlantic service and one smaller of metal-clad type for South American service. Cost of the initial program has been set at $17,000,000 made up of $10,750,000 as cost of the transatlantic ships, $2,750,000 as cost of the South American ship, $3,000,000 for construction of an Atlantic terminal, and $500,000 for the examination of proposed types of airships as yet undemonstrated in flight. The U. S. Shipping Board Bureau may be expected to assume administration of all matters associated with construction and operation programs.

BROADER POWERS FOR THE SHIPPING BOARD

Federal regulation of rates of ship lines operating in overseas trades have become effective by the Shipping Board with Section 18 of the Shipping Act as its authority, the same being brought to bear for the first time towards the end of November in connection with the intercoastal service. The Far East trade which had been greatly disrupted all year by the dissolution of its conference and by reductions of rates by certain of the competing lines was expected early to feel some practical manifestation of the Board's authority. The Shipping Board is permitted to suspend or cancel rates which it considers as too low to be profitable to the lines and at the same time a potential cause of injury to established trades. Lines in the intercoastal service were denied the rights to continue rates which the Shipping Board held were excessively low.

PROGRESS IN AERONAUTICS

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INTRODUCTORY

The cancellation of air-mail contracts last February by the Post Office Department centered the public's attention on the aeronautical industry far more than any aeronautical event since Colonel Lindbergh's flight to Paris. The rapid development of air transportation had been stopped so suddenly that the entire aeronautical industry was thrown into confusion. The unsuccessful attempt to employ the Army Air Corps for the carrying of mail while new contracts with private companies were being negotiated proved conclusively that the private companies had been doing a very difficult job well.

TRANSPORT

Air Mail Contracts. — The new air-mail contracts negotiated by the Post Office Department brought about realignments in the organization of the air transport companies. The Department would not permit any company to bid for the short term air-mail contracts unless the officers and directors of the companies, which had had previous air-mail contracts and had, so it was alleged, acted in collusion against the Government, were removed. At the same time the routes for which the contracts were to be let necessitated reorganization or consolidation of air transport companies. At the same time, new companies entered the field.

The American Airlines, Inc., formed in May, 1934, operates five routes, covering 58 cities. They are New York to Montreal, New York to Chicago, Boston to Dallas, Dallas to Los Angeles, and Chicago to Washington, D. C. This company operates Curtiss Condor planes and has introduced an innovation in American passenger air travel which has been greatly welcomed. Several of the Condor planes, a twin-engined biplane, are now provided with sleeper facilties so that night air travel has become far more comfortable and more appealing to the public. In addition to these planes, the company also operates the latest Douglas transports and the fast single-engined, 8-passenger Vultee.

The Central Airlines operate between Washington and Detroit *via* Pittsburgh, Akron, and Cleveland, three times daily. Lockheed Vegas, and tri-motored Stimsons, are being used at present while the addition of faster equipment will probably be made in the near future.

Eastern Air Lines.—The Atlantic Seaboard from New York to Miami, and New Orleans, is being served by Eastern Air Lines, Inc., who have added eight Douglas transports to their fleet of Curtiss-Wright Condor planes which are being modernized. This company has recently inaugurated an 8½-hour service between New York and Miami. It also operates a line over the Chicago and Jacksonville route.

Transcontinental and Western Air.—The fastest transcontinental passenger and mail service is now offered by Transcontinental and Western Air which cover the Los Angeles-New York route in regular 16-hour trips with Douglas transports. Several record trips of 12 hours have been made with stops only at Chicago and Kansas City so that even faster service may confidently be expected. This constitutes a marked change from a few years ago when a 36-hour trip was considered as splendid.

United Air Lines.—There is another transcontinental line from New York to San Francisco covered by the United Air Lines, Inc. with twin-engined Boeings. They also operate over the routes between Seattle and San Diego as well as between Salt Lake City and Seattle. This company consolidates the Boeing Air Transport, Pacific Air Transport, National Air Transport, and the Varney Air Lines. It has established an enviable reputation and has flown the greatest number of air miles for a single operating company to date—over 70,000,000 miles, of which 30,000,000 were covered at night.

Pan American Airways. — The American Airline of the greatest interest as far as international significance is concerned is the Pan American Airway System. It operates from Miami to the West Indies, Central and South American Countries, has an established airline in Alaška, and this year has branched out with an airline in China. It has recently increased its equipment by the addition of the world's largest commercially operated flying boats, the Sikorsky *Brazilian Clipper,* and has contracted for an even larger flying boat with the Glenn L. Martin Co. Pan American has also expanded its mail and express service in South American Countries.

Inter Island Airways. — Air mail has been introduced into the Hawaiian Islands by the Inter Island Airways, Ltd., which received a mail contract in October, 1934. This company operates Sikorsky amphibions between the many islands.

Railroad Airline Services. — The railroads have made no further entries into the air transportation field. Instead they have turned their attention toward cooperating with existing airlines in the handling of express. Through the Air Express division of the Railway Express Agency, air express service between the United States and Central and South American countries has been established. The airlines of the entire United States have been coordinated with the Pan American system. There are now 110 cities in the United States being served with air express. The total mileage is now over 15,500 miles and steadily increasing. There has been a marked increase in air express tonnage over the previous year.

Transport Statistics. — Due to the temporary cancellation of the air-mail contracts, the airlines did not show the customary progress in some respects, yet in spite of this there has been an increase of about 3,000 miles in the total mileage of the national system, for the latest figure available is 28,548 miles. The new air-mail contracts have caused a decrease in the number of daily schedules so that the daily mileage amounted to some 78,196 miles, at least 20,000 miles below last year's average. That there has been remarkable progress in other respects, is clearly brought out by the following table covering domestic and foreign air lines of American operation:

	January to June	
	1933	1934
Miles flown	25,862,120	21,517,658
Passengers carried	235,139	241,772
Express carried (lbs.)	1,055,876	5,273,014
Passenger-miles flown	76,642,393	93,571,572

The reduction in air-mail postal rates from eight to six cents resulted in increased air mail poundage; June, 374,590,801 pounds; July, 454,192,862; August, 511,005,729, or roughly from one third billion to one half billion pounds in three months.

ACCIDENTS

Increased passenger travel indicates that the public has faith in air travel. The increased speed of the modern air transports has not increased the danger. In round figures, during the first half of 1934, there were about 800,000 miles of scheduled miles flown for each accident. In the 27 accidents that occurred, 179 persons were involved. Of these 106 suffered no injuries whatever, 34 suffered only minor injuries, 10 suffered somewhat more severe injuries, while there were 29 fatalities. An analysis of these accidents indicates that personal error is still the largest contributing factor, being responsible for about 52%; failure of power plant caused 12%, airplane failure 19%, weather about 15%, poor airports and terrain about 17%, and miscellaneous causes 2%. These figures indicate that landing facilities are very good, that weather conditions are no longer as serious as formerly and that the airplane and power plant are becoming more and more reliable.

SERVICES AND FARES

No drastic changes in fares took place in the last year. However, faster schedules inaugurated by the airlines makes travel by air more desirable. Sleeper service is now available on several routes with even greater comfort than on trains because of the reduction in noise and vibration, and complete absence of dust. The stepping up of the speed of the modern airliners to a cruising speed of around 200 miles per hour has resulted in 16-hour schedules from Los Angeles to New York and 8½ hours from New York to Miami. A business man can now travel from coast-to-coast overnight in perfect comfort and without loss of a single business day.

TRANS-ATLANTIC SERVICES

South Atlantic mail service is now an established fact. Both the French Aéropostale and the German Lufthansa have established regular air mail service across the Atlantic from Africa to South America. The Lufthansa employs a mother ship *Westphalen* in mid-ocean which picks up the seaplanes and later catapults them. North Atlantic service will probably be inaugurated soon and be jointly operated by the Pan American and British Imperial Airways. The Sikorsky *Brazilian Clipper* and the new 50,000-pound Martin flying boat will soon start experimental flights across both the Atlantic and Pacific oceans. The Pan American Airways, due to their experience with South American travel are in an excellent position to extend their operations in the North Atlantic.

PRODUCTION

Aircraft production showed an upward trend during 1934, particularly in the transport plane field. The output of the Douglas DC-2 has reached two planes a week. The Boeing and the Airplane Development Corporation have filled sizeable orders for the Boeing 247-D and the Vultee transport respectively. The Sikorsky Corporation is completing the third of its giant clippers, and the Martin has completed its 50,000-pound flying boat in addition to a large number of fast twin-motored bombers for the army. Other companies such as the Kreider-Reisner and Waco have been kept busy putting out planes for the private flyer.

A total of 748 airplanes was produced in the first half of 1934. This compares favorably with 673 for a similar period the previous year. Of 748 machines 374 were for domestic civil use, 264 were military aircraft, and 110 were exported.

RESEARCH AND DESIGN

Sikorsky Brazilian Clipper.—The year was marked by a healthy evolution in aircraft design rather than by spectacular development of un-orthodox aircraft. The milestones of progress are the Sikorsky S-42, the *Brazilian Clipper,* and the new Douglas Transport. The Sikorsky is a four-engined (Pratt & Whitney ''Hornets'' of 700 horsepower each) with a total weight of over 38,000 pounds, and capable of a maximum speed of 183 miles per hour at 5,000 feet altitude. It is the largest flying boat used for commercial operations and represents such an advance in design that it easily captured ten world records for flying boats. Eight of the records were made in a single flight of 1,242 miles at an average speed of 157.5 miles per hour with a useful load of 4,409 pounds. With a payload of 11,000 pounds, it reached an altitude of 21,800 feet. A truly remarkable record was made with a useful load of 16,608 pounds (the equivalent of 94 passengers but only 32 passengers can be accommodated in the space available) in attaining an altitude of 15,084 feet. The *Brazilian Clipper* is capable of flying over 1,200 miles with 32 passengers, a crew of five, and 1,000 pounds of mail. The cruising range can be increased to 2,500 miles by reducing the number of passengers to 16 and supplying additional fuel. This range makes the Atlantic crossing *via* Bermuda and the Azores within the realm of commercial feasibility.

The Douglas DC-2 demonstrated its superiority by capturing first place in the handicap division of the London-Melbourne race. A twin-engined, low-wing, all metal monoplane, it cruises comfortably at close to 200 miles an hour with the landing gear retracted. It provides the maximum of comfort to its 14 passengers through well designed sound proofing, as well as efficient heating and ventilating systems.

Other Transports. — The Boeing 247-D in many respects similar to the Douglas, came a close second in the London-Melbourne race. The single-engined Vultee air transport is capable of a cruising speed of better than 200 miles an hour with 8 passengers. Another fast transport is the Lockheed twin-engined *Electra.* A 50,000-pound Martin flying boat with a range of 3,000 miles is about to go on its first test flight and will be used by Pan American.

Special designs of interest were the Granville-Miller De Lochner *Q.E.D.* and the Bellanca *Swoop,* both low-wing monoplanes of extraordinary high load carrying capacities and high speed.

Planes for Private Flying. — The $700 airplane for the private flyer aroused a great deal of discussion in the aeronautical industry, but later events proved that the hopes of the Department of Commerce were too high. As a result of a competition for such an airplane, a contract for 15 planes was awarded to the Hammond Aircraft Co. The requirements were that the plane was to land perfectly level, have a speed range of 35 to 110 miles per hour, and various take-off and landing characteristics. The specifications were reminiscent of the Daniel Guggenheim Safe Aircraft Competition staged in 1929. Instead of $700, the cost will be in excess of $3,000 due to small production.

Materials and Constructon.—1934 saw the advent of what is known as ''flush riveting.'' On the outside the rivets are perfectly flush with the skin, thus offering no added air resistance. The Sikorsky *Clipper* for instance is ''flush riveted'' throughout. Stainless steel and its allied shot-welding process continued to be developed. Shot welding has been applied to dural, so far for non-structural members only. A new aluminum alloy has been evolved and used. It has a higher strength-weight ratio than the dural used thus far.

Construction Novelties. — The retractable landing gear has been almost universally adopted for transport machines. In the cases of the Vultee transport and the Lockheed ''Altair'' the wells into which the wheels retract are covered by special plates attached to the landing gear so that a perfectly smooth surface is presented to the air stream. Besides the landing gear the tail wheel is also retracted on the Vultee.

Special ''tabs'' or ''trimmers'' are now provided on the elevators to trim most of the transport and many military ships in place of the adjustable stabilizer previously used. This permits a rigid tail construction which is so important for high speed ships. ''Trimmers'' have also been used on ailerons and rudders making flying hands-off possible.

Power Plant.—No important new designs of aircraft engines have been placed on the market during the year. However, several 1,000-horsepower, liquid-cooled, radial-type engines are being developed. Automatic lubrication of valve stems and racker arms is now available on the Wasp engine. Previously the lubrication had to be provided by grease guns before flights. Baffling of air-cooled cylinder for cooling purposes has been given special attention by the National Advisory Committee for Aeronautics, their findings having been generally adapted. An adjustable cowling developed by Pratt & Whitney Aircraft Co. which employs a series of flaps along the trailing edge around the circular N.A.C.A. engine cowling has been successfully used in controlling the amount of cooling required for radial engines.

Propellers.—The evolution of controllable pitch propellers has taken an important step forward. Several automatically controllable pitch propellers have been invented. They correspond to an automatic gear shift of a car. The Hamilton Standard Propeller Co. has developed a ''constant speed'' propeller which tends to keep the revolutions of the engine constant regardless of throttle setting. This offers a possibility of controlling the engine with the propeller adjustment and eliminating the throttle. ''Constant speed'' propellers have been installed in the new Martin flying boat, while controllable propellers are now standard equipment on all modern transport airplanes.

Instruments.—The year was devoted largely to refinement rather than to the introduction of new instruments. The Weston Electric Co. has placed on the market two instruments to aid in blind landings. They are actuated by means of a radio beam sent from the airport. One of the instruments tells the pilot his distance from the airport, while the other guides him along the proper glide path to a safe landing.

Noise Abatement. — The noise abatement campaign continues successfully. The quiet Douglas cabin shows plainly the achievement of the sound engineers. Mufflers of greater efficiency have been developed. Engine noise has been reduced by them without materially affecting engine power. Noise has been further reduced by the proper distribution of sound proofing material over the cabin walls and the employment of silencers in the ventilating air ducts.

Rotary Aircraft. — An American wingless autogiro has taken to the air within the latter half of 1934. Its performance exceeded that of its winged predecessors. The control is achieved by the shifting of the rotor shaft. The ''paddle wheel'' type of aircraft has not left the tunnel stage yet. Various helicopter principles are also being experimented with. In Belgium a helicopter made several successful flights of short duration.

Airships.—A non-rigid ship of 360,000 cubic feet capacity and 233-foot overall length has been delivered to the army by the Mercury Aircraft Corporation. It is equipped with a special landing gear and derives part of its lift from the dynamic force of the air upon its hull. At Friedrichshafen, Germany, the world's largest rigid airship *LZ 129* is under construction. Dr. Eckener hopes to use it for passenger service across the Atlantic.

Aids to Navigation.—High-speed. long-distance flying have made new air maps necessary. The new maps will be about 16 miles to the inch as compared to 8 miles to the inch of the present type. In the field of radio the Department of Commerce continued its research towards facilitating landings in fog. In addition to the landing beam, the Department has developed an instrument which flashes a red light in the cockpit when the pilot passes over an airport in fog. Work is now being conducted on a radio facsimile transmitter for radio reports. Five new Federal airways are now under survey and construction. They are: Galveston-Waco, Tulsa-St. Louis, New Orleans-St. Louis, and Seattle - Minneapolis. PWA funds are being used for this development.

Airports.—There are 297 rated airports in the country now which is three more than last year. The total number of airports increased from 2,191 in February to 2,226 by October last. Of these there were 638 and 646 lighted fields respectively. Construction and improvement of airports is going on under PWA and other public funds.

LICENSES AND PERMITS

By October, 1934 there were 556 approved type certificates issued to aircraft; 132 issued for engines, and 483 issued for propellers. There was a slight drop in the number of active pilots from 13,932 in 1933 to 13,717. However, an increase in student pilot licenses from 11,385 to 13,789 is encouraging. There are 8,144 active mechanics this year as compared to 8,220 for 1933. There are 6,864 licensed aircrafts in the United States this year which is 26 less than last year.

CONTRACTS AND LEGISLATION

Private air-mail carrying has been resumed after the cancellation under short term contracts. The stipulations of the contracts made it necessary to reorganize most of the major airlines of the country to make them eligible for the new contracts.

The work of the Federal Aviation Commission is expected to result in important legislation after its findings are presented to the congress. The Commission headed by Clark Howell, the Atlanta publisher, has on its board E. P. Warner and J. C. Hunsaker as the aeronautical members, the other members are Franklin Lane and Albert J. Berres. Carroll Cone of the Department of Commerce acts as its secretary. Among the thorny questions to be answered by the Commission are the problems of united airforce, method of procurement for the army and navy, adequate payment to the air-mail contractors, and many others.

CONGRESSIONAL APPROPRIATIONS

American airlines are still laboring under insufficient financial assistance from the Government. The amount paid to contractors during June, July and August were $560,417, $643,670, $639,286. In August this amounted to 1.25 mills per pound-mile flown. A portion of PWA funds was assigned for the purchase of army and navy equipment. Among the planes purchased with this money was a series of the high-speed Martin bombers.

AERONAUTICAL CHAMBER OF COMMERCE

The Aeronautical Chamber of Commerce of America under the leadership of Leighton W. Rogers as its executive vice-president has been active through its committees in fostering the interest of air transport. Walter A. Hamilton of J. W. A. heads the committee on Air Line Maintenance which instigated many improvements in the new transport ships. The Committee on Air Line Operations Managers of which C. R. Smith of American Air Lines is chairman was instrumental in effecting revisions to the *Air Commerce Bulletin 7E* on Air Line Regulations. The problem of increasing air traffic has been given special study by the Air Traffic Committee under the chairmanship of V. E. Chenea of Pan American. The Transport Committee. composed of Air Line presidents, has directed its efforts towards making recommendations to the Federal Aviation Commission. Other committees which have been active during the past year are: Committee on Airports, Steadham Acker, chairman; that dealing with fuels and lubricants headed by Major E. E. Aldrin, and finally the Aerial Service Committee under Oliver Parks. In addition to the many activities of the Chamber mentioned above, the Chamber handles the administration of the Air Transport Code. The work of the Aeronautical Chamber is of particular significance because it represents air line operators who control well over 90 per cent of total miles flown in the United States in addition to the foreign activities of such companies as the Pan American Airways, Inter Island Airways and others.

GOVERNMENT AGENCIES

The Department of Commerce and the National Advisory Committee for Aeronautics carried on their activities in their usual efficient manner, the former in revising various regulations to advance safe flying, marking of towns, construction and improvements of airports on PWA funds, experimentation with radio beacons to assist in blind landings, encouraging the development of a safe airplane for the man of average means. The latter continued its research in aircraft and engine fields producing invaluable data for the manufacturers.

THE RADIO

By W. R. G. Baker

Vice President, RCA Victor Company

GENERAL

Technical and Commercial Development. — The year 1934 brought many important developments in radio, advances in the art being accompanied by new applications, the expansion of existing facilities, as well as encouraging improvement in the industry itself. The optimism which characterized American business in general was present to no less a degree among radio manufacturers, dealers, and broadcasters who enjoyed a successful year both as to volume of business and as to stabilization of the trade. The popularity of foreign short-wave reception was a boon to the manufacturers and dealers, while the brighter outlook for all branches of business was reflected in greater and more profitable activity for the broadcasters whose income is derived from advertising. The United States continued to lead the countries of the world in number of transmitters and receivers. A Department of Commerce survey made during the year shows that, of an estimated total of 42,540,000 radio receivers in operation throughout the world, 18,500,000 are in the United States, and, of 1,497 medium-wave broadcasting stations, this country has no less than 585.

New and Extended Uses.—Radio continued to find new and extended uses. Police radio call and two-way communications systems increased greatly in number and relatively large expenditures for radio equipment were made by private aircraft organizations as well as by the Army and the Navy. Preparations were made for commercial transmission of facsimile pictures and messages by radio between several American cities and for international exchange. A striking demonstration of the speed with which photographs can be made and transmitted to distant points by radio occurred when the vessel, *Morro Castle,* burned off the northern New Jersey coast. Aerial photographers were sent out from New York City to the scene of the disaster and took pictures of the burning ship. Processing of the photographs was done in the aeroplane during flight. Within an hour and a half after the fliers had set out, these pictures had been transmitted by short-wave facsimile to London, Paris, and Berlin for publication in newspapers of those cities.

Size of Industry.—A picture of the size of the radio industry in the United States can be obtained from the following figures, quoted from the magazine *Electronics:*

	Total Investment	Annual Gross Revenue	Number of Employees	Annual Payroll
Radio manufacturers,[1] distributors, etc.	$150,000,000	....	[2]75,000	$80,000,000
Broadcasting stations................	$30,000,000	$75,000,000	9,000	$30,000,000
Listeners' sets (18,000,000 homes)......	$1,800,000,000	....	....	[3]$210,000,000
Commercial radio stations............	$30,000,000	$10,000,000	15,000	$4,000,000

[1] Radio set manufacturers now number 165.

[2] Employees at peak of seasonal employment.

[3] Annual operating expense of listeners' sets for tube replacements, electricity, batteries, servicing, etc.

Television made progress toward commercialization but no plans have been made public indicating that image broadcasting networks or practical home receivers are near at hand. It was generally agreed, by leaders in the industry, that the financial problems are more formidable than the technical problems in building facilities and apparatus for this new form of entertainment. Television broadcasting to serve the entire country will require completely new transmitters, studios, interconnecting circuits, and receivers which would be relatively high in cost. Sources of revenue for the broadcasters, as well as suitable forms and sources of program material are other problems which require solution before the establishment of large-scale systems.

GOVERNMENT CONTROL

New Legislation.—The third major step in the regulation of radio by the Government took the form of the Communications Act of 1934 which was passed by Congress, June 9th and took effect July 1st. Previous to this, the Wireless Act of 1912 had been enacted, dealing mainly with commercial wireless and amateur stations, and later, the Radio Act of 1927 which pertained particularly to broadcasting stations and also established the Federal Radio Commission to act as the licensing and governing body.

Federal Communications Commission.—The new law abolished that group and set up, in its place, the Federal Communications Commission to regulate not only radio but also the telephone and telegraph which formerly were under the supervision of the Interstate Commerce Commission. This new body consists of seven members appointed by the President, with the consent of the Senate, to serve for a term of seven years. The members of the new commission are: Judge E. O. Sykes, former chairman of the Radio Commission; Thad H. Brown, of Ohio, also a former member of the Radio Commission; Paul A. Walker, of Oklahoma; Norman S. Case, of Rhode Island; Dr. Irvin Stewart, of Texas; George Henry Paine, of New York, and Hampson Gary, of Texas. Dr. C. B. Joliffe was retained as Chief Engineer of the new body. The Act gives the President authority to take over all communication facilities in time of war or ''public peril'' and makes certain restrictions regarding granting of licenses to stations controlled in whole or in part by aliens. The Commission is authorized to grant three-year licenses to broadcasting stations while licenses to other stations shall be for a period not to exceed five years. Provision also is made for granting licenses to transmitters of not over 100 watts power in localities not sufficiently served by broadcasts. The Commission has been requested to make a thorough study of all broadcasting and communications facilities in order to make recommendations for suitable radio legislation by the Seventy-fourth Congress.

MANUFACTURE AND SALES

NRA Code.—The radio industry, which was placed under the Electrical Manufacturers' Code in 1933, continued to operate under this code during 1934. This arrangement was not entirely satisfactory to the radio manufacturers and, as a result, a group of their members drew up a new code which was submitted to the Administration in Washington. One of the new provisions would allow a 40-hour week in place of the present 36-hour week which, it is felt, is not suitable to the special manufacturing conditions in the radio industry which must produce such a large proportion of its output during two and a half months of the fall. However, with a view toward reducing rather than adding to the number of codes, the National Industrial Advisory Board recommended that the radio industry continue under the NEMA Electrical Code but with a separate administrative authority.

Divisional Code Authority. — A supplemental code was drawn up for the radio wholesalers and it received the Administration's approval. The Divisional Code Authority in this case consists of twelve members selected from the trade and authorizes them to set up an organization for the carrying out of the code provisions. One of these provisions relates to the creation of a Trade Practice Committee, the duties of which are to meet with similar committees appointed by the manufacturers and by the retailers for the purpose of formulating recommendations of changes in the codes or their administration which will promote stabilization; other sections deal with specific trade practices and what constitutes unfair practice. This code has been of much benefit to the industry and paved the way to a cooperative advertising and sales promotion program during the latter part of the year.

Retail Sales.—The following tabulation, compiled by *Radio Retailing,* shows the volume of radio receiver and parts sales, at retail, from 1930 to 1933 inclusive:

VOLUME OF RADIO SALES

Product	1930	1931	1932	1933
Home receivers, no.	3,793,800	3,312,000	2,477,000	3,082,000
value	$329,198,000[1]	$206,100,000[1]	$117,710,000[1]	$102,301,000[1]
Motor car sets, no.	34,000	108,000	143,000	724,000
value	$3,000,000[1]	$5,940,000[1]	$7,150,000[1]	$28,598,000[1]
Total sets sold, including those exported, no	....	....	....	4,315,000
Total retail value	....	....	....	$140,224,000
Tubes	52,000,000	53,500,000	44,300,000	55,605,000
	$119,600,000	$69,550,000	$48,730,000	$56,599,000
Total tubes sold, including exports, no.	....	....	....	63,300,000
A–B–C (dry) Batteries	$21,514,000	$13,100,000	$9,500,000	$8,600,000
Accessories[2]	$17,120,000	$8,580,000	$6,200,000	$8,000,000
Parts sold to consumer	$6,000,000	$6,000,000	$6,900,000	$8,500,000
Grand Totals	$496,432,000	$309,270,000	$196,190,000	$212,598,000

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[1] Does not include tubes.

[2] Includes speakers, aerial equipment, meters, pick-ups, turntables, furniture, power units, storage batteries, chargers, etc.

The following figures, also taken from *Radio Retailing,* show the sales of radio receivers, by types, for the same period:

Type	1930	1931	1932	1933
Midget or Table, no.	1,130,000	1,800,000	1,900,000	2,226,000
value	$56,520,000	$63,000,000	$57,500,000	$50,085,000
Console, no.	2,663,400	1,512,000	577,000	856,000
value	$272,678,000	$143,100,000	$60,210,000	$52,216,000
Automobile, no.	34,000	108,000	143,000	724,000
value	$3,000,000	$5,940,000	$7,150,000	$28,598,000
Total, no.	3,827,000	3,420,000	2,620,000	3,806,000
value	$332,198,000	$212,040,000	$124,860,000	$130,899,000

NOTE: Sets are priced less tubes, and at retail prices.

Production and Prices. — During the first six months of 1934, the number of radio receivers produced was 1,774,746 compared with 1,436,134 for the same period of 1933. It was estimated that the total for 1934 was 4,400,000 instruments. The upward trend of prices, and the buying of higher quality instruments, is indicated by the rise in the average price from $33.60 for the second quarter of 1933 to $40.50 for the same quarter of 1934.

BROADCASTING

Technical Improvements. — Broadcasting in the United States showed continued progress during the past year. Although there was no increase in the total number of stations, more powerful higher quality transmitters were put into service. There was similar improvement in interconnecting circuits and studio equipment. By means of efficient mobile radio telephone and wire telephone equipment, the broadcasters were able to transmit over the networks many interesting descriptions, speeches, etc., from scenes such as the *Morro Castle* fire and the National Geographic stratosphere flight. The American Broadcasting Company was organized during the year and started operation of a network of 21 stations.

Transmission.—The Federal Communications Commission, in an experiment to determine the value of wider frequency channels in the broadcast band, designated three channels between 1,500 kilocycles and 1,600 kilocycles—1,530, 1,550, and 1,570—having a separation of 20 kilocycles and making possible high-fidelity transmission. With the existing channel separation of 10 kilocycles, it is not possible to use a modulation frequency of more than 5,000 cycles without overstepping the channel boundary and probably causing interference with transmissions in the adjacent channels. It is generally agreed that, for high-fidelity broadcasting, frequencies up to 8,000 cycles or higher, should be reproduced, and such transmissions will require wider channel separation.

Allocation of Facilities.—The Commission, in its study of the broadcasting situation, held a series of hearings to which educators, representatives of religious interests, and broadcasters were invited to present their views regarding allocation of wavelengths, facilities, and time to various forms of non-profit broadcasting. Some individuals recommended more facilities for cultural programs, while others advocated a nation-wide network of state-controlled stations for educational activities. The broadcasters defended the present arrangement by presenting evidence to show that only 40 per cent of the networks broadcasting time is devoted to commercially-sponsored programs and that the remaining 60 per cent is alloted in satisfactory proportions to various non-profit features. At the annual meeting of the National Advisory Council on Radio in Education the majority of those who expressed themselves disapproved of government ownership and control of broadcasting, and held that government censorship of programs would lead to influencing the presentation of news and endanger the right of free speech.

News Service. — The press-radio agreement which was drawn up between the publishers and the broadcasters, providing for the broadcasting at specified times solely of news bulletins prepared by the publishers, did not prove entirely satisfactory to the broadcasters who felt that this system resulted in stale and too limited news reaching the listeners. Several stations made independent arrangements for securing news and there were proposals of organizing a nation-wide radio broadcasting news service.

Super-power Station.—Of particular interest was the dedication of the 500 kilowatt broadcast transmitter of station WLW in Cincinnati, the first ''super-power'' station in this country. Previous to this the highest power used commercially was 50 kilowatts. The use of this high power increased greatly the coverage of the station by increasing the signal strength about three times, and there was no evidence of the station ''blanketing'' the listeners' receiving sets.

COMMUNICATION RADIO

Police Systems. — The year witnessed considerable progress and expansion in radio systems for state and municipal police. One hundred and thirty cities in eight states were equipped with transmitters, and there were 4,000 police cars carrying receivers. These systems have aided greatly in the apprehension of criminals by cutting down the time required for police officers to get on the criminal's trail. The average time required for the radio-equipped police car to reach the scene of the crime after being called (based on 200,000 calls) was found to be two and a quarter minutes. These systems, for the most part, have operated on frequencies of 1,720 kilocycles and 2,440 kilocycles but recently installations have been made using mobile receivers and transmitters operating on frequencies as high as 60,000 kilocycles.

Aircraft Radio.—The use of radio by aircraft and landing fields grew rapidly during the past year. New beacon systems for guiding aircraft during poor visibility, and additional stations for transmitting weather information, were installed at airports. Aircraft more generally were equipped with beacon signal receivers and short-wave two-way communication systems. Equipment was developed in which the voice, speaking into the microphone, controls the starting and stopping of the carrier frequency, thus making possible two-way communication on the same frequency channel.

Radio Facsimile. — Preparations were made by the Radio Corporation of America for short-wave radio facsimile transmission betwen New York, Philadelphia, Boston, Washington, San Francisco, New Orleans, and Chicago, with other cities to be added to the circuits later. This system uses a photo-cell scanner at the transmitter, and the picture of message is reproduced at the receiver by means of sensitized photographic paper, by an ink recorder, or by a carbon-paper printer. This equipment makes possible transmission of typewritten or printed messages at very high speeds and the transmission is not seriously affected by severe static disturbances.

Amateur Radio. — The licensed amateur radio operators, totaling 35,000, continued their energetic experimenting in short-wave transmission and reception, with encouraging results. The Federal Communications Commission granted them the use of all frequencies above 110,000 kilocycles, in addition to their other bands. Transmission and reception on a frequency of 240,000 kilocycles, equivalent to a wavelength of 125 centimeters, was accomplished over a distance of 35 miles. The American Radio Relay League, the official amateur organization, celebrated its twentieth anniversary.

APPARATUS

Transmitters.—The designs of radio transmitters showed a tendency toward more compact units of pleasing appearance, and the elimination of the majority of storage batteries, motors, and generators which have added to the space requirements and maintenance costs of transmitter installations. The use of highly efficient vacuum tubes and gaseous vapor tubes has made this possible. With the demand for higher quality radio broadcasting the frequency characteristics, distortion characteristics, and voltage ripple in transmitting equipment have been improved to meet this demand.

Receivers.—The majority of home broadcast receivers manufactured during 1934 were capable of receiving short-wave transmissions as well as the standard frequencies. For the purpose of standardization, receivers were classified in three groups according to tuning range: ''All-Wave,'' ''Dual - Wave,'' and ''Standard - Wave.'' The first group tuned from 540 kilocycles to at least 18,000 kilocycles; the second group covered the 540-1,500 kilocycles band and had a short-wave range in which the ratio of maximum to minimum frequencies was at least two-and-one-half to one between 4,000 kilocycles and 20,000 kilocycles; the last group covered the standard 540-1,500 kilocycle range. A survey showed that of the receivers sold during the second quarter of the year 55 per cent were ''All-Wave,'' 23 per cent were ''Dual-Wave,'' and 22 per cent were ''Standard Wave'' instruments. There was a decided trend toward higher quality console-type receivers, although the table-type instruments continued to be popular with thè public. Various circuit refinements, and novel mechanical features to facilitate tuning of the short-wave signals, were incorporated. There was considerable development work on ''high-fidelity'' receivers having an essentially uniform response in the audio range from 50 cycles to 7,500 cycles. The realistic reproduction of the original sound requires a receiver with such characteristics, and many engineers felt that development should be concentrated in the direction of ''high-fidelity.'' A few receivers of this type were placed on the market.

The demand for automobile radio receivers continued during the past year with a larger proportion of them being sold directly to the motor car manufacturers. The majority of these receivers utilized mechanical vibrators as part of the system for producing the necessary high direct-current voltage from the low voltage of the car storage battery, while a number of the higher-priced instruments used dynamotor (motor-generator) units.

Tubes.—Few new types of tubes were brought out during the year, and the large variety available appeared to fill the needs of most transmitter and receiver designers. There was a trend toward standardizing on the 6.0 volt filament tube for home radio receivers as well as mobile receivers. Tubes of the ''acorn'' variety, so-called because of their similarity to an acorn in shape and size, were placed on the market for experimental use. These tubes have characteristics similar to those of the corresponding standard tubes but, because of their very small inter-electrode capacities, they are especially suited to ultra-high-frequency circuits.

RESEARCH

Centimeter Waves.—The efforts of radio research workers were directed largely toward exploration and study of the ultra-high radio frequencies, so-called centimeter waves. Continuous oscillations were obtained having a wavelength of one centimeter. Practical transmission was achieved over a distance of 16 miles, with a wavelength of 9 centimeters, in tests conducted at Fort Monmouth, N. J. during the summer. Parabolic reflectors were used to direct and to receive the signal beam which was found to behave much the same as a beam of light.

Television. — Intensive research work on television continued during the past year. The cathode ray tube appeared to be the best device both for scanning the scene to be transmitted and for reproducing the image at the receiver, although several investigators continued work with mechanical systems.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

MANUFACTURERS

American Assn. of Creamery Butter Manufacturers, 208 S. La-Salle Street, Chicago, Ill.

American Automobile Assn., Pennsylvania Ave. at 17th Street, Washington, D. C.

American Bottlers of Carbonated Beverages, 726 Bond Bldg., Washington, D. C.

American Brush Manufacturers Assn., 505 Arch St., Philadelphia, Pa.

American Hardware Manufacturers Assn., 342 Madison Ave., New York City.

American Institute of Steel Construction, 200 Madison Ave., New York City.

American Iron and Steel Institute 350 Fifth Ave., New York City.

American Paper and Pulp Assn., 370 Lexington Ave., New York City.

American Petroleum Institute, 250 Park Avenue, New York City.

American Zinc Institute, Inc., 60 E. 42nd Street, New York City.

Mellon Institute of Industrial Research, University of Pittsburgh, Pittsburgh, Pa.

National American Wholesale Lumber Assn., 41 E. 42nd Street, New York City.

National Assn. of Cotton Manufacturers, 80 Federal Street, Boston, Mass.

National Assn. of Ice Industries, 163 W. Washington Street, Chicago, Ill.

National Assn. of Manufacturers of the U. S. of America, 11 W. 42nd St., New York City.

National Assn. of Wool Manufacturers, 80 Federal Street, Boston, Mass.

National Automobile Chamber of Commerce, 366 Madison Ave., New York City.

National Electrical Contractors Assn., 420 Lexington Ave., New York City.

National Electrical Manufacturers Assn., 155 E. 44th Street, New York City.

National Lumber Manufacturers Assn., 1337 Connecticut Ave., Washington, D. C.

National Machine Tool Builders Assn., 1220 Guarantee Title Bldg., Cleveland, O.

National Metal Trades Assn., 126 Liberty Street, New York City.

Rubber Manufcturers Association, 250 W. 57th St., New York City.

Silk Assn. of America, 468 Fourth Ave., New York City.

United States Brewers Assn., 55 W. 42nd St., New York City.

United Typothetae of America, Tower Building, 14th and K Sts., N. W., Washington, D. C.

TRANSPORTATION AND COMMUNICATION

Aerial League of America, 280 Madison Ave., New York City.

American Assn. of Railroad Superintendents, 111 Union Station, St. Louis, Mo.

American Railway Assn., 30 Vesey St., New York City.

American Railway Engineering Assn., 59 E. Van Buren St., Chicago, Ill.

American Road Builders Assn., 938 National Press Building, Washington, D. C.

American Steamship Owners Assn., 11 Broadway, New York City.

Associated Traffic Clubs of America, 917 Majestic Bldg., Indianapolis, Ind.

Cruft Laboratory, Harvard University, Cambridge, Mass.

International Amateur Radio Union, 38 LaSalle Road, West Hartford, Conn.

Maritime Assn. of the Port of New York, 80 Broad St., New York City.

National Aeronautic Assn., 1909 Massachusetts Ave., Washington, D. C.

National Council of American Importers and Traders, Inc., 45 E. 17th St., New York City.

National Highway Users Conference, National Press Building, Washington, D. C.

National Industrial Traffic League, 1 La Salle Street Bldg., Chicago, Ill.

National Traffic Service Assn., 105 N. Moore St., New York City.

North American Export Grain Assn., Inc., 2 Broadway, New York City.

Railroad Owners Assn., 502 Chandler Building, Washington, D. C.

Railway Business Assn., 1406 Packard Building, Philadelphia, Pa.

Traffic Vigilance League, Inc., 401 Broadway, New York City.

United States Bureau of Standards, Washington, D. C.

United States Naval Research Laboratory, Washington, D. C.

Western Railways' Committee on Public Relations, Room 2018, 105 W. Adams Street, Chicago, Ill.

PART FIVE

SOCIAL CONDITIONS AND AIMS

DIVISION XIV

IMMIGRATION AND POPULATION

RACE CONDITIONS IN THE UNITED STATES

By Harry H. Laughlin

Department of Genetics, Carnegie Institution of Washington

ASSIMILATION AND RACE-INTEGRITY

A Practical Problem.—The present annual review of race conditions in the United States is treated from the standpoint of race integrity because the assimilation of recent immigrants and immigrant-stocks, as a vital element of the larger problem of the maintenance of race integrity, has recently become a practical problem demanding the serious attention of the American people.

Inherent Rights.—The principle of race integrity implies the right of every race to maintain its racial purity and to set ideals for its own physical, mental and spiritual constitution, towards the attainment of which, by migration control and selective breeding, the particular race strives. Within its own territory each race must, by all humanity, be granted the right to promote its own race integrity. The right to strive for race integrity is like the pursuit of happiness; it is one of those things which is not given by one human group to another, but is an inherent right. An alien in a host country exists there either by virtue of his military prowess—a conqueror—or on sufferance of the host country, and not in accordance with any inherent rights either moral or legal. Inherent rights are enjoyed by races only in their home countries.

Racial Standards. — When European emigration waves after the World War were about to overwhelm America, President Coolidge said ''America must remain American.'' Similarly, each race, whether the French at home, the Germans at home, the Jews in their new homeland, etc., has an inherent right to set its own racial standards, and to regulate immigration and human reproduction in such a manner as to breed toward the attainment of these standards. (*Eugenical News* July-August, 1933, by H. H. L.)

Race Records. — When treating race as an objective matter, neither the historian nor the eugenist should be hampered in the freest investigation and report. In turn, such an investigator must be willing to be cross-examined concerning his own point of view, his facilities and limitations, his system of research and his objective. For example, Madison Grant, in the *Conquest of a Continent* tells how the Nordic peoples in America have thus far lived the history of a splendid race. Now let the historians of other masterful races, with equal vigor and candor, present their own race-records for the sound judgment of world scholarship. Let each such history record particularly the trend of the inborn talents and defects of its people and periodically let it strike the balance between success and failure in efforts to reach the nation's objective. Other periodical balances should refer to such major matters as contributions to and destruction of the world's culture and outlook, and to race-betterment *versus* race-degeneracy with successive generations in the fields of physical symmetry and stamina, mental capacity, and moral fiber. Basic history is race-history; race- history is the stuff out of which national policies are evolved. Let each human group strive to eliminate its own degenerate strains, and to breed most abundantly from those stocks which most nearly approach its own race-ideals. (*Eugenical News* Jan.-Feb., 1934 by H. H. L.)

Segregation Tendencies.—Thus far in American history the assimilation of immigrants into Americans, racially, linguistically and in national loyalty, has been a fairly continuous and successful process. Since the Colonial inter-racial struggles among the Indians, British, French and Spanish there have been only occasional suggestions of race or religious immigrant-groups resisting assimilation and seeking to perpetuate and to increase themselves as Old World segregates, racially and institutionally, within the United States. But recently there have been signs of a tendency for certain alien groups to form self-perpetuating segregates based on race, on language, on religion, or on residential concentration. Such new segregates tend to place loyalty to their own alien-spirited segregate first, and loyalty to the American people as a whole second. Each such group seeks, more or less secretively, all of the benefits of political organization, and at the same time vigorously disclaims actual political organization and its corresponding responsibility.

Need of Greater Assimilation.—The student of history finds many parallel cases in which the traditional race-integrity of the immigrant-receiving nation has been destroyed, because the receiving country admitted immigrants indiscriminately in reference to racial constitution, to individual quality, physical, mental and spiritual, and to evenness of geographic spread. It is a general principle that the receiving nation, if it is to retain its own racial integrity, must limit immigrants in numbers, select them radically by race and quality, spread them evenly over its whole receiving country, and, whenever a sign of alienism raises its head, to slow down immigration in numbers and to select them more radically by race and quality and to distribute them more evenly; in other words not to take in immigrants faster than the receiving country can assimilate them. The historian will point out that America, as an immigrant-receiving country in the early decades of the Twentieth Century, needs to work more assiduously for the assimilation, that is, the Americanization, of its new-comers.

Eugenics Research Association.—One of the clearest analyses of current racial problems made during the current year was presented by the scientific program of the 22nd annual meeting of the Eugenics Research Association, which was held at the American Museum of Natural History, New York City, June 2, 1934. The main theme of this particular meeting was race integrity, and the following abstracts of those papers which were devoted to this special subject give the main findings of these several studies.

BIOLOGICAL FOUNDATIONS*

Survival Factors.—Human evolution results from the variations in the survival values of individuals and of human groups. Those groups that possess such qualities of survival value in the greater degree will survive, and those that only possess them in a lesser degree will become extinct and disappear as factors in the evolution of racial life. Our present civilization would no doubt be inclined to regard intelligence as the psychological factor of highest survival value. (But) from the moral factor arises the sense of obligation and duty, and the observance by individuals of the different moral obligations which they may be considered to be under to the racial group to which they belong is the prime psychological factor in the suvival of such groups. Close upon the moral factor follows the religious factor. Any careful examination of racial history will go to show that it is by a religious faith in the spiritual and mystical nature and purpose of existence that human groups most tend to derive the courage to strive successfully, the desire for racial achievement, the confidence in racial history, and the incentive to perpetuate the racial stock. Our own civilization may not wish to abandon its unbiological aspirations, but this will not suffice to prevent survival values from registering their results in the racial future.

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*From the paper of Clarence G. Campbell presented at the annual meeting of the Eugenics Research Association.

Physical Facts. — Look wherever we may, we can discover no evidence of race improvement from the mongrelization of races. But we find abundant sequelae of racial deterioration and racial degeneration. The race anthropologist finds many physical disharmonies due to the mixture of different skeletal and morphological racial patterns, and greater susceptibility and lowered resistance to disease in such mixtures. These are abundantly verifiable physical facts, and are not open to question. Indeed morphological and somatic disharmonies offer the most likely explanation for the occurrence of such lethel stigmata as insanity, feeble-mindedness, and cancer, in the mixture of endogamous racial stocks that would themselves originally need to be all but free from such stigmata. But we have to recognize that the ''melting-pot'' theory has long been dear to the popular American heart, and many still entertain a fond belief in its magical powers of transmuting dross into precious metal, and that it has only to be reiterated often enough to become biologically true. Its most ardent advocates are those who, like the mule, have no pride in ancestry nor hope in progeny, and who are anxious to persuade others to share their own unhopeful outlook. Such individuals seek to convince us that mongrelization has gone so far that it is irretrievable, and hence that the only course open is to make it complete, so that eventually this whole nation will become a heterogeneous and nondescript melange of Nordic, Alpine, Mediterranean, Negro, Amerind, and Semitic racial qualities.

BULWARKS OF RACE PURITY*

Social Factors. — Race purity is chiefly determined by social factors. A race, keenly conscious of some real or imaginary superiorities, will not mix maritally with supposedly inferior races, though it lives, so to say, next door to them. Sexual irregularities may occur frequently, but not marital unions. Our own South in pre-Civil War days illustrates this statement abundantly. But even where peoples belong to the same anthropological race, social differences may keep them apart maritally.

Language.—It is the frame as well as the painting of the mind; the only means by which the latter can express itself and the principal means of forming its content. Difference in language means a difference in the total mental attitude, and inability of communication.

Nationality. — Language and nationality are inextricably interwoven, the warp and the woof which make the cloth. At the present time, nationality, based on language rather than political affiliation, is the most prominent principle of adhesion among groups of human beings.

Culture and Wealth. — A people with a higher culture is apt to look with disdain if not with comtempt on other peoples with lower cultural standards; greater wealth almost inevitably produces the same result, *e.g.*, ''poor white trash.''

Religion.—It used to be the strongest bond among men, as happened in the Crusades, until it was supplanted by nationalism. It entered the very depth of the human soul, and any person of a different religion was branded with scorching epithets.

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*Rudolph M. Binder, N. Y. University.

Ridicule.—A race possessing the advantages mentioned, almost necessarily tries to ridicule inferior races; and ridicule takes many forms, covering almost every aspect of life, *e.g.*, customs, mental attitudes, language, and religion.

THE PURITANS AS A RACIAL STOCK[*]

Test of Superiority.—In the study of eugenics there has been far too little investigation of the experiments played by Nature and recorded in history. The Puritans are one of the best examples of this. In the first place they are the product of a very drastic process of selection. Even now, selection among our recent immigrants causes the percentage of illiteracy among them to decrease almost steadily from New York westward. The Puritans were selected far more drastically than any modern group of immigrants. In order to see how much effect this has had, a study has been made of the persons listed by name in the United States census of 1790 or set forth in *A Century of Population Growth*, and in *Who's Who*. A technique has been developed by which it is possible to determine the percentage of Puritan inheritance borne today by people of any specific name. Here are samples of the preliminary results of this study, subject to future revision, which will not change the essential feature.

Taking the 804 names beginning with *A*, *B*, and *C*, in the 1790 census (83,000 heads of families), we find that among names which were borne by over 90 per cent of persons of Puritan descent, the number of leaders bore the following relative proportions to those which were borne by less than 10 per cent of persons who were of such descent:

Persons born before 1760	1.5
Persons born 1761 to 1810	1.9
Persons born 1811 to 1850	2.2
Persons born 1851 to 1870	2.8

In other words, the Puritan stock always excels the other. The degree of superiority increases as time goes on; but this is subject to some correction.

Another test is based on 102 names borne in 1790 by at least 100 heads of families, among whom at least 85 per cent lived in New England, and 15 other names borne by at least 1,000 heads of families, of whom less than 30 per cent lived in New England. Classifying these according to the approximate present percentage of Puritan blood, we find that representation in several lists shows the following ratios among persons now living:

	Approximate Per Cent of Puritan Descent				
	85	60	45	25	17
Who's Who	30.5	28.0	20.4	10.0	6.7
Directors of Corporations	42.6	38.4	27.3	16.6	11.2
Scientists	13.4	12.9	9.4	5.3	3.4

Occupation. — Again, the occupations of the Puritan descendants differ from those of others, as appears in the following figures for 75 families (about 60% Puritan descent) and 16 others (about 20% Puritan):

Probability what Puritan group will be in occupation, if probability for others is 100 (living persons)

Business	74
Law and Politics	79
Education and History	81
Military	88
Religion	127
Science and Engineering	129
Literature and Journalism	134

All these and many other facts seem to indicate that the Puritan selective process was followed by nearly 200 years of more or less complete segregation and intermarriage almost wholly with their own kind. The Puritan stock possesses a very clear-cut biological as well as social individuality, which, on a small scale, is like that by which distinct races have probably arisen. Almost any other group of people, if subjected to the right selective process, might give rise to a similar able progeny.

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[*] Ellsworth Huntington, Yale University.

VIRGINIA'S METHODS OF RESEARCH IN RACIAL INTEGRITY*

The Virginia Bureau of Vital Statistics discovered soon after the organization of the Bureau in 1912 that near-white Negroes were registering their births as white. The Bureau began to investigate the matter through its local registrars, physicians, and others, and discovered a spontaneous and widespread movement of those people to secure official recognition as white through birth, death, and marriage registration. A systematic effort to combat this movement was begun by securing accurate and dependable information as to the racial origin of such families and groups of families, through living informants familiar with the facts, and through old birth, death, and marriage records covering the period 1853 to 1896. Much information was also secured by referring to the old tax records listed by races, going back to the early part of the nineteenth century. Woodson's *Free Negro Heads of Families in the United States in* 1830 also furnished exceedingly valuable information.

An act of 1924 legislature was secured defining a colored person as one with any ascertainable degree of Negro blood, and forbidding the marriage of such a person and a white one. It also makes it a felony to make a registration certificate false as to color or race.

Starting with groups of mixed breeds from 200 to 1,200 in number, claiming their colored admixture to be Indian with no Negro, we found it not difficult to secure definite evidence of Negro as the basic stock. In most instances no evidence whatever could be found of Indian mixture. In other cases individual families and connections, the beginning of new larger groups originating from one white-Negro crossing, have been definitely studied and evidence filed by counties.

Most of the group families have been studied, with authentic data as to their pedigree filed in our office by counties in a special set of four steel drawers of racial integrity files. Most of this information is signed by responsible people of the local communities, and has been checked with our own original records and the old county tax records kept by colors on file in the State Library adjacent to our office.

New cases are constantly coming to the front, usually illegitimate mulatto children of white women. Information concerning these is carefully secured and placed on file. The State Department of Public Welfare is now separating mulatto children from white families and placing them with colored people. In this way future difficulties will be lessened. The Juvenile Courts are rendering valuable assistance when appealed to for decisions by school authorities and others. A number of cases have also been brought to our attention through the schools. Physicians are becoming more and more careful in reporting them on birth certificates. Neighbors in a few cases have called our attention to colored children in white families.

Virginia cannot alone handle this, perhaps the greatest of our American problems. The other states of the Union must recognize the danger and unite with Virginia in the effort to control it. Northern states cannot feel secure in the belief that with the small proportion of Negroes entering into the population make-up the danger is negligible. With laws permitting racial intermarriage, the situation is exactly opposite to this belief. In fact our Virginia negroids are going north for the express purpose of securing admission into the white race. The census reports show that during the past two decades the

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Negro migration northward has greatly altered the situation, making the question of racial amalgamation a national and not a local one.

THE NEGRO AND RACE INTEGRITY*

Mr. Peters quoted Professor Charles H. Wesley of Howard University as follows: ''The admixture of blood in the Western Hemisphere has tended to weaken in Negroes the pride of race and of lineage which has been the criterion of success for other nations and races. Negroes are held together not by pride in themselves, but by the lash of public opinion, segregation and social barriers. * * * As an American, the Negro expects to demand and claim his citizenship, but citizenship has its basis not only in place of birth, but in racial self-respect. * * * When the Negro learns to appreciate himself, others will learn to appreciate him.''

Commenting on this quotation, Mr. Peters said: ''It is well known that there are tribes in Africa who will fight to the last man to prevent any admixture with their tribal blood. So also are there tribes which have disinherited and ostracised their women who have married, or otherwise entered into some form of concubinage with men of other races, particularly Caucasians. * * * '' He states further: ''It is a common observation that mulattoes are weaker physically than their brothers and sisters of pure African blood.

''Through racial amalgamation colored homes are divided and broken. It is not uncommon to see a brother living and working as a white man, while his sister of darker hue but of the same mother and father lives and works as colored, and *vice versa.* * * * It is evident that the initiative in the admixture of blood and of races is taken more freely by the white man than by the colored man, whether this admixture be legal or illicit. * * * In the interest of racial integrity, racial purity, racial amity, and their own racial honor and self-respect, is it not the duty of white men themselves to regard colored women as inviolate? * * * He (the Negro) desires to develop the best qualities in his racial inheritance by retaining and cherishing his self-respect and his racial pride. And these ends are only to be accomplished by the maintenance of his racial integrity.''

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*Sutton Peters (Negro), New York.

IMMIGRATION PROBLEMS

BY DANIEL W. MACCORMACK

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ANALYSIS OF IMMIGRATION

Admissions and Departures.—The fiscal year ended June 30, 1934, marked an increase in immigration to the United States. Emigration from the United States, while much less than that of the previous two years, still exceeded the influx. There resulted a net population decrease of 13,268, which is strikingly in contrast with the average annual net increase of the years 1908 to 1930, which was 264,459. The net population decrease of 1933 was 93,074.

During the fiscal year 1934 there were 163,904 aliens, both immigrant and non-immigrant, who entered the United States. In 1933 arrivals totaled 150,728. The increase was at a rate of 8.7%. Immigrants, *i. e.*, aliens contemplating permanent residence, totaled 29,470 compared with 23,068 for the previous year. Non-immigrants, *i. e.*, aliens entering temporarily or in transit, also returning residents, numbered 134,434 compared with 127,660 in the previous year. Emigrants, *i. e.*, aliens permanently departing, were 39,771, as compared with 80,081 for the previous year. Non-emigrants, *i. e.*, aliens departing with intention to return, also departing temporary visitors, were 137,401, the comparable figure of the previous year being 163,721.

The percentage increase of immigrant admissions was 27.8. Of the year's total, 29,470, there were 12,483 quota immigrants and 16,987 non-quota immigrants. The largest element of the latter class, 8,183, were natives of the non-quota countries of the Western Hemisphere. Next in order of numerical importance were 4,348 wives and 2,522 children of United States citizens. Ministers of religion, with their wives and children, numbered 362. Professors of universities and colleges, with their wives and children, numbered only 113. Husbands of United States citizens, accorded non-quota status, were 1,021 in number. In each of these classes, except husbands of United States citizens, there was an increase by comparison with the previous year. Natives of non-quota countries which averaged 127,926 in the six years, 1925 to 1930, were reduced to 21,139 in 1931, to 9,328 in 1932, to 7,475 in 1933, and 8,183 in 1934.

Immigration Sources.—During the past fiscal year Europe as a whole sent us 17,210 immigrants, or 58.4% of the total influx. Countries of North, Central and South America contributed 11,409, or 38.7% of the total. Asia sent 597, or 2%, while Africa, Australasia and other areas altogether contributed only 254, or 0.9%. The six European countries from which most immigrants came during the fiscal year 1934 were Germany, 4,392; Italy, 4,374; Great Britain, 1,305; Poland, 1,032; France, 707; Czechoslovakia, 644. A drastic reduction in immigration from Mexico continued in effect throughout the year. Since 1927, when the high tide of Mexican immigration brought 67,721 persons into the United States from that country, the recession has been progressive. In 1930 the movement was 12,703. In 1931 it fell 74%, to 3,333. In 1932 it was further reduced to 2,171; in 1933 it was 1,936, and in 1934 it was 1,801. Canadian immigration also has been reduced. In 1930 admissions from that country were 63,502. In 1931 a 66% reduction was shown in the figure 21,687, while in 1932 a further 63% reduction was effected when admissions were limited to 7,927. In 1933 admissions totaled 6,135, and in 1934, 7,873.

Sex Classification.—Immigrant females continue to outnumber immigrant males. This is a development of the past five years. Over a long period of years, or until 1930, the average immigrant influx was 63.4% male and 36.6% female. In the year 1933, however, the proportions were almost exactly reversed, immigrants being 60% female (13,849) and 40% male (9,219). In 1934 immigrants were 58.9% female (17,369) and 41.1% male (12,101).

Non-immigrant Arrivals. — The year's record shows a decline in the number of alien residents of the United States returning from temporary visits abroad. This is always the largest element of the non-immigrant class. In 1932 returning residents were 67,057, in 1933 they numbered only 62,610, and in 1934 they numbered 55,169. A few of admissions as returning residents (less than 1%) were original entries—infants, or immigrants. In other non-immigrant classes there appear increasing numbers, as in temporary visitors for business, 11,360 in 1933 and 13,068 in 1934; temporary visitors for pleasure, 25,539 in 1933 and 36,765 in 1934; aliens in continuous transit through the United States, 22,693 in 1933 and 23,687 in 1934. A subdivision of the temporary visitor classes shows England far in the lead, 2,321 coming for business and 6,287 for pleasure. Germany is next with 1,612 coming for business and 4,488 for pleasure. Of the 55,169 returning alien residents, 10,669 were born in Germany, 4,957 in Italy, 4,849 in England, 4,401 in the Irish Free State, 3,695 in Scotland, 2,611 in Japan, 2,234 in France, 2,051 in Sweden, 1,629 in Norway, 1,299 in Spain, 1,180 in British West Indies, 1,147 in Poland, 1,039 in China, and 1,021 in Canada.

ANALYSIS OF EMIGRATION

Departures. — Males continue to predominate in statistics of emigration. In 1934 there were 24,481 emigrant males (61.6%) and 15,290 emigrant females (38.4%). Although emigrant departures decreased 50%, the proportions of sex representation remained almost constant. In the previous year (1933) emigrant males were 51,852, or 64.7%, while emigrant females were 28,229, or 35.3%. It is interesting to note that most of those departing had only a few years' residence in the United States. There were 19,579 who had lived here from 1 to 5 years and 10,375 whose residence was from 5 to 10 years. There were 4,512 who had remained from 10 to 15 years and 2,305 who had lived here 15 to 20 years. Those whose residence was from 20 to 25 years numbered 1,567, while those who had remained 25 years or more numbered 1 433. By far the largest racial group departing was the Mexican, numbering 6,384. There were 4,841 English, 4,227 Germans, 3,314 Italians, 2,293 Chinese, 2,268 Scotch, 1,963 Irish, 1,838 Scandinavians, 1,290 Spanish, 1,182 Spanish Americans, and 1,179 French.

CHINESE

The net decline of alien Chinese residents of the United States during the fiscal year 1934 was again drastic. There were 2,553 admissions, of which only 24 were immigrants and 2,529 were non-immigrants. Departures numbered 5,267 of which 2,293 were emigrants and 2,974 were non-emigrants. The net decrease of population thereby was 2,714. There were, however, 2,897 American citizens of Chinese race admitted during the year, 2,421 of them returning from temporary visits abroad. Only 45 alien Chinese seamen deserted from vessels at American ports during the year, an increase over the small number of 30 last year, and a decrease from the 76 in 1932.

DEPORTATION OF ALIENS

Deportees.—During the 1934 fiscal year a total of 8,879 aliens were arrested and deported, as compared with 19,865 in the preceding year and 19,426 for the fiscal year 1932. In addition to those actually deported there were 8,010 subject to deportation who departed voluntarily. Of the total of 8,879 expulsions, 2,418 were deported to Europe, 3,883 to Mexico, and 1,577 to Canada. European countries receiving most were Italy, 529; England, 240; Germany, 200; Greece, 156; Yugoslavia, 128; Scotland, 115, and Poland, 113. Most of those deported were found in five American States, *i.e.*, Texas, 2,317; New York, 1,488; California, 1,197; Michigan, 618, and Arizona, 516. Persons found in the United States without proper visas under the Immigration Act of 1924 made up the largest class of deportees. Their number was 3,611, of whom 1,722 were Mexicans, 238 English, 217 French, and 192 Chinese. The next largest class is that of persons of the criminal classes numbering 1,711; and the third largest those who remained longer than permitted. Their number was 986.

Criminals.—During the year there were deported 2,094 aliens of the criminal and immoral classes, including 765 who were criminals at time of entry; 804 who were convicted of crimes involving moral turpitude after entry; 122 narcotic law violators, 383 of the prostitute and procurer classes and 20 of the anarchistic or communistic class. Expulsions of narcotic law violators numbered 167 in 1933. Expulsions of the anarchistic or communistic class were represented by 74 deportations in 1933. Almost half of the criminal and immoral deportees for 1934 were Mexicans, the total of that race being 998. There were also 178 English, 156 Italian, 112 French, 93 Irish, 72 German, and 71 Scotch.

Mental Cases. — Deportation for causes existing prior to entry was effected in 369 cases, the principal cause, insanity, being responsible for 215. In addition, there were 293 aliens deported because mentally or physically defective at time of entry. A total of 539 were deported because of illiteracy, 359 because of unlawful entry after previous expulsion, and 337 because of entry without proper inspection.

Removal of Distressed Aliens. — During 1934 there were returned to their native lands 446 aliens who applied for relief on account of indigence. In the previous year there were 1,645 such persons. Most of the 446 (311 male and 135 female) were found in the populous States—193 in New York, 70 in Michigan, 38 in Pennsylvania, 29 in Illinois, 16 in California, and 15 in Ohio. They were of all nationalities, but the largest number were returned to the British Isles, 81 to Scotland, 52 to England, 7 to the Irish Free State, 9 to Northern Ireland and 7 to Wales. Italy received back 95, Germany 32, Portugal 39, Norway 26, Spain 11, Sweden 9, Poland 8, and Greece 7.

CHANGES IN THE IMMIGRATION LAWS

Philippines.—On March 24, 1934, Congress passed a law which makes the immigration statutes applicable to citizens of the Philippine Islands who are not citizens of the United States. This bill, with certain exceptions, limits the number of Philippine citizens who may enter the United States as immigrants to a yearly quota of fifty, prohibits the migration to continental United States of Philippine citizens residing in the territory of Hawaii unless they are of the non-immigrant or non-quota classes or they have been admitted to the territory of Hawaii as immigrants with visas, and subjects such persons to deportation from the United States if they fall within any of the deportable classes. The act is made inapplicable to citizens of the Philippine Islands who seek to enter the territory of Hawaii without immigration or passport visas, but their immigration is determined by the Department of the Interior on the basis of the needs of industry in the territory. With this exception the law requires that citizens of the Philippine Islands, who are not citizens of the United States, be considered as though they were aliens.

Registration Amendment. — On June 8, 1934, Congress amended the so-called registry provisions of the Act of March 2, 1929, by adding a new class of aliens who may be granted the privilege of registry. The law, as amended, authorizes the registry of any alien of good moral character not ineligible to citizenship of whom there is no record of admission to the United States for permanent residence who, prior to July 1, 1933, could not be deported to any country to which it was lawful to deport him, and who was in the United States as a *bona fide* political or religious refugee. As the bill came from the Immigration and Naturalization Committee, it was proposed to grant registry not only to aliens of the non-deportable class having the required other qualifications, but also to aliens who might be classified as *bona fide* political or religious refugees. On the floor of the House, the bill was changed by requiring that an alien to be registered under the act must be both a non-deportable alien and a political or religious refugee. A relatively small number of aliens will be affected by the act.

CITIZENSHIP AND NATURALIZATION

By Daniel W. MacCormack

Commissioner of Immigration and Naturalization, Department of Labor

CITIZENSHIP

Status by Naturalization. — The fundamental authority for citizenship in the United States rests upon two provisions in the Constitution (*see* The American Year Book, 1928). The status of citizenship, whether arising through birth under the Constitution or through naturalization under statute, is a conditional one. Presumptive expatriation may ensue on absence from the United States of two years with residence in the state of former allegiance, or five years' absence in any other foreign state. Such presumption may be overcome by presentation of satisfactory evidence to diplomatic or consular officers of the United States under rules of the Department of State. A permanent residence established outside of the United States within five years after acquisition of American citizenship is ground for setting aside naturalization by judicial procedure. Citizenship terminates upon taking oath of allegiance to any foreign sovereignty, whether or not citizenship be acquired under the oath, and likewise upon naturalization elsewhere. These last two acts apply equally to naturalized and native citizens.

MACHINERY OF NATURALIZATION

Limitations.—Naturalization is not open to all races but is limited to those who come within the language of Section 2169 of the Revised Statutes of the United States (U. S. C., t. 8, Sec. 359), by which only aliens who are white persons or of African nativity or descent are included. Within such limitations the various naturalization laws have been enacted by Congress. An exception in the Act of 1918 provides for the naturalization of certain native-born Filipinos who have served honorably in the United States Navy, Marine Corps, or Naval Auxiliary Service.

Judicial Jurisdiction. — Congress has conferred naturalization jurisdiction upon the United States District Courts in the various states and in Alaska and Hawaii, and state courts which have a seal, a clerk, and jurisdiction in actions at law or equity or law and equity in which the amount in controversy is unlimited. The Territorial Courts for Hawaii, the Supreme Court of the District of Columbia, the United States District Court for Puerto Rico, and the District Court of the Virgin Islands have been similarly empowered by Congress. Citizens of the Philippine Islands are not citizens of the United States but owe allegiance thereto. They are not eligible for naturalization as United States citizens unless they have rendered the above-described service in the United States Navy, Marine Corps or Naval Auxiliary Service. Citizenship of the Philippine Islands is conferred under the Philippine naturalization law of 1920 upon certain natives of the Philippines and other insular possessions of the United States, citizens of the United States, and aliens who would be eligible to citizenship of the United States if residing therein.

Immigration and Naturalization Service.—The Service accomplishes the administration of these laws through the field service, with branches located in approximately 230 cities throughout the United States, including Alaska, Hawaii, and Puerto Rico, and immigrant inspectors detailed abroad as technical advisers to American consular officers. All are subject to the direction of the Commissioner of Immigration and Naturalization from the administration headquarters in the Department of Labor in Washington.

NATURALIZATION PROBLEMS

Alien Population.—The naturalization problem arises out of the millions of persons of foreign birth who have sought the opportunities that this country offers through its wonderful resources and beneficent laws. The 1930 Census reports 13,366,407 alien-born white men, women and children. Of this number, 7,859,193 were naturalized, 1,246,521 had taken out first papers, 3,787,086 were alien, with 473,607 status unknown.

NATURALIZATION PROCEDURE

Process of Application.—The first step consists in applying to the Immigration and Naturalization Service for the ''certificate of arrival'' to show the date, place, and manner of the alien's arrival in the United States. The entry must have been for permanent residence under the immigration law in force at the time of entry in order that the required certificate of arrival may be issued. Those arriving prior to June 29, 1906 are exempt from the certificate of arrival requirements.

Judicial Action.—Upon the issuance of the certificate of arrival, the applicant appears before the appropriate clerk of court and makes formal declaration of intention to become a citizen. Within seven years from the date of such declaration, and after five years of unbroken residence, the alien may file his petition for admission to citizenship if the declaration of intention be then at least two years old.

Residential Requirements. — The petition for citizenship must be completed by the affidavits of two subscribing witnesses who must be citizens of the United States and who testify to all of the period of residence for which they are competent, and also to the good moral character of the petitioner during such period. Five years of residence and good moral character immediately preceding the date of the petition must be established, although more than two witnesses may be used for different periods of residence. At least the last six months of residence must be within the county where the petition is filed. Petitions for citizenship may not be heard by the court until after 90 days have elapsed after filing. Some exceptions to these general provisions are made in favor of certain soldiers, sailors, enlisted men in the Navy and Marine Corps, and in favor of certain American women who were formerly citizens and who desire to resume their citizenship lost through marriage.

As a part of the judicial proceeding, naturalization examiners who have been designated by the Judges of the U. S. District Courts to conduct naturalization hearings hold preliminary hearings and make findings and recommendations to the courts. In such cases the witnesses are not required to appear in the courts unless directed by the court or objection to naturalization is offered by the Government examiner. The lawfulness of residence is established in all cases of arrivals from and after July 1, 1924, by reference to the immigration visas which are in the custody of the Service at Washington. In all other cases reference is made to the immigration records at the various ports of entry into the United States. There were 32,842 visas received in 1934, making a total of 1,983,879 in the archives of the Service.

Naturalization Fees. — The fees prescribed for naturalization are as follows: Certificate of arrival, $2.50; declaration of intention, $2.50; petition for citizenship, $5.00; certificate of repatriation, $1.00, and that for a new certificate of citizenship or declaration in lieu of one lost, mutilated, or destroyed, $1.00. In the case of an alien where there is no record of arrival prior to June 3, 1921, the immigration authorities will make a record of the entry upon satisfactory evidence, for which a fee of $10.00 is payable to the Commissioner of Immigration and Naturalization. The fee for a certificate of derivative citizenship is $5.00. These fees represent a reduction by half under the Act of April 19, 1934.

PETITIONS AND GRANTS

Since the Act of June 29, 1906 became operative, up to and including June 30, 1934, there have been 6,320,987 declarations of intention made by candidates for citizenship, with 3,521,022 certificates of citizenship granted upon the 3,935,987 petitions for citizenship filed. During the year 1934, there were 108,079 declarations of intention made, of which 92,749 were made by men and 15,330 by women of foreign birth. A total of 117,125 petitioned for admission to citizenship, included in which were 86,700 men and 30,425 women. There were 113,669 who received certificates of citizenship, of whom 82,465 were men and 31,204 were women.

SPECIAL NATURALIZATION

Women.—On Sept. 22, 1922, Congress passed a law which provided that women might become citizens independently of the action of their husbands. This law repealed the provisions of the law by which the wife became a citizen upon the naturalization of her husband or lost her citizenship upon marriage to an alien. Since that time the records show that there have been 465,130 women who made the declaration of intention to become citizens of the United States, 421,276 who filed petitions for citizenship, and 399,000 who were admitted to citizenship under the general provisions of the Act of 1906, the Act of September 22, 1922, and subsequent legislation heretofore discussed which liberalized the naturalization procedure for women (*see* THE AMERICAN YEAR BOOK, 1931).

Exemptions to World War Veterans.—During the year ended June 30, 1934, there were 2,601 veterans of the American forces of the World War who filed petitions for citizenship under the special provisions of the law of May 25, 1932. This act was limited to two years and expired on May 25, 1934. The total number of veterans naturalized under such special exemptions is 307,529.

NATURALIZED PERSONS

(Fiscal Year, 1933-34)

Country		Number
Repatriated Americans		1,839
British Empire:		
Ireland	12,318	
Canada	8,548	
England	4,590	
Scotland	2,790	
Wales	316	
Australia	68	
Others	1,377	
Total, British Empire		30,007
Germany		18,008
Italy		17,053
Poland		12,392
Russia		6,071
Czechoslovakia		3,105
Sweden		3,028
Norway		2,161
Serbs, Croats and Slovenes		2,116
Greece		1,727
Hungary		1,633
Rumania		1,617
Austria		1,589
Lithuania		1,460
Denmark		1,219
Switzerland		956
Finland		927
Turkey		917
France		859
Netherlands		798
Portugal		727
Spain		649
Belgium		413
Syria and the Lebanon		397
Mexico		346
Latvia		275
Albania		133
Bulgaria		125
Brazil		123
Others		999
Total		113,669

NEW LEGISLATION

Status of Children.—New Legislation enacted May 24, 1934, enlarged Sec. 1993 of the U. S. Revised Statutes, thereby conferring citizenship upon foreign-born children whose fathers or mothers or both were citizens at the time of the children's birth, provided either one or both of the parents resided in the United States previous to the birth of the children. Where one of the parents is an alien at the time of the birth of the child, its citizenship is subject to being divested if certain conditions subsequent are not fulfilled. The Congress also extended citizenship to children born outside the United States of alien parents who become naturalized or resume United States citizenship during the minority of the children, provided the children begin to reside permanently in the United States before reaching their sixteenth birthday and five years elapse thereafter.

Renunciation of Citizenship.—This act also provided for the renunciation of American citizenship by a citizen of the United States upon marriage to a foreigner before a court having jurisdiction over naturalization of aliens.

Marriage Exemption. — Section 2 of the Act of September 22, 1922, was amended and provided for the naturalization of an alien eligible to citizenship without the necessity of furnishing a declaration, and being required to prove three years' residence instead of five, if the marriage to a citizen of the United States occurred after 12 noon E. S. T., May 24, 1934, or if either spouse was naturalized after 12 noon E. S. T., May 24, 1934. There had been no previous exemption in favor of the husband.

ALASKAN INDIANS

Under the Act of May 7, 1934, United States citizenship was conferred upon those Indians who had established the colony known as Metlakahtla, Alaska, and had resided continuously therein since January 1, 1900.

PUERTO RICO CITIZENSHIP

The Act of June 27, 1934, conferred United States citizenship upon all persons born in Puerto Rico on or after April 11, 1899, who then were not citizens, subjects, or nationals of any foreign power. The privilege of regaining American citizenship under the Act of September 22, 1922, as amended, was extended to women natives of Puerto Rico who lost their American nationality by reason of marriage to aliens eligible to citizenship or by reason of the loss of United States citizenship by their husbands.

POPULATION STATISTICS

By Leon E. Truesdell

Chief Statistician for Population, U. S. Bureau of the Census

TOTAL POPULATION

Population Growth.—The population of Continental United States on April 1, 1930, the date of the Fifteenth Census, was 122,775,046, as compared with 105,710,620 on Jan. 1, 1920, the date of the last preceding census. In 1790, when the First Census was taken, the population was only 3,929,214. The following table gives the figures for each of the 15 censuses, with the number and percentage of increase over the preceding census:

POPULATION OF THE UNITED STATES
1790 to 1930

Census Year	Population	Increase Over Preceding Census	
		Number	Per Cent
1930..........	122,775,046	17,064,426	16.1
1920..........	105,710,620	13,738,354	14.9
1910..........	91,972,266	15,977,691	21.0
1900..........	75,994,575	13,046,861	20.7
1890..........	62,947,714	12,791,931	25.5
1880..........	50,155,783	11,597,412	30.1
1870..........	38,558,371	7,115,050	22.6
1860..........	31,443,321	8,251,445	35.6
1850..........	23,191,876	6,122,423	35.9
1840..........	17,069,453	4,203,433	32.7
1830..........	12,866,020	3,227,567	33.5
1820..........	9,638,453	2,398,572	33.1
1810..........	7,239,881	1,931,398	36.4
1800..........	5,308,483	1,379,269	35.1
1790..........	3,929,214	....	....

Intercensal Estimates.—For many purposes it is desirable to have population figures for dates within the decade between one census and the next. As a basis for computing birth rates, death rates, and per capita expenditures, for example, annual figures are required. To meet this need, the Census Bureau has regularly made certain estimates for July 1 of each year.

The population of the United States as a whole has been estimated since 1926 on the basis of reported births, deaths, and net immigration, which latter has been a minus quantity in recent years. The estimate for July 1, 1934, was 126,425,000, which may be compared with 122,775,046, the census figure for April 1 1930.

To get estimates for states, counties, and cities, the increase in the population of the United States, obtained as above indicated, has been prorated among the constituent areas on the basis of the increase in the population of these areas between 1920 and 1930. This amounts to the same thing as projecting the 1920-1930 increase of each state or city on an arithmetical basis and then scaling down this estimate in proportion as the estimated increase for the United States falls short of equalling a similar projection for the country as a whole. To be specific, the average annual increase in the population of the United States between April 1, 1930, and July 1, 1934, was 860,000 (3,650,000 in 4¼ years), whereas the average annual increase between 1920 and 1930 was 1,665,000 (17,064,426 in 10¼ years). The average increase since 1930 thus represents only 51.7 per cent of the average annual increase during the preceding census decade.

The simplest method, therefore, for

obtaining the estimated population of a state for July 1, 1934, would be, first, to multiply the average annual increase in the population of that state between 1920 and 1930 by 4¼; second, to take 51.7 per cent of this product, which would represent the increase scaled down to accord with the increase recorded for the country as a whole, and third, to add this increase to the 1930 population of the state.

This method of obtaining estimated populations for states, counties, and cities assumes that there have been no changes in the general tendencies of the population except a slowing down in the absolute rate of increase. As a matter of fact, there have been, since 1930, tremendous changes in the population, by reason of migration from one place to another as the result of the depression. In particular, there has been a great migration from the larger cities into the rural areas, reaching its maximum perhaps about July, 1933, with some return movement since that time. Because of this migration, the computed estimates of the population of cities are likely to be far too high, since many cities had in 1933 a population actually smaller than in 1930. No method practicable for general application has been devised, however, which will take account of these irregular population movements, and it may be truly said that, with the material available, it is impossible to make satisfactory population estimates for cities or counties, or perhaps even for states. Nevertheless, because of the insistent demand for population estimates of some sort, the annual estimates for states have been continued up to 1934, and 1933 estimates have been issued for cities of 10,000 or more, one justification for this action being that, if the Bureau does not issue any estimates, recourse will be had to local estimates, which are likely to be even less satisfactory than those computed by the method outlined above.

Future Population Growth.—There is widespread interest at the present time in the probable growth of the population of the United States over a considerable period into the future. American industry has formed the habit of expecting a continually expanding market for its products; failing this, it will be confronted with the necessity for significant readjustments. It has become evident, however, that even the present rate of growth, which is less than seven-tenths of one per cent per year, is not likely to continue. Long range estimates made by various men interested in the study of population trends indicate that unless there are radical changes in present conditions, the population of the country will reach about 131,000,000 in 1940 and will increase slowly to about 137,000,000 in 1955, and from that time on will decline, at first slowly, and then more rapidly as the accumulative results of the declining birth rate come into operation.

The most important of the factors responsible for the decline in the rate of increase in our population is the fall in the birth rate which has decreased from 23.7 per thousand in 1920 to 16.6 per thousand in 1933. While the death rate has also declined, its decrease has been much smaller, and as a net result the rate of natural increase (birth rate minus death rate) has declined from 10.6 per thousand in 1920 to 5.9 per thousand in 1933. The present low death rate cannot be long maintained, however, in view of the fact that the population is rapidly increasing in average age. The rate of natural increase seems sure to be reduced still further, therefore, both by a continued decline in the birth rate and by an increase in the death rate.

The more significant data on births and deaths which need to be considered in any study of probable future trends in population are presented in the following table, which gives for each year from 1920 to 1933 the number of births and deaths reported in the registration area (with estimates for the United States as a whole), the annual rates per thousand of the population, and a three-year moving average rate, which indicates the changes with less variation on account of fortuitous conditions than the single-year rates:

BIRTHS AND DEATHS IN THE REGISTRATION AREA: 1920 TO 1933

[The birth registration area included 59.8 per cent of the total population of the country in 1920 and the death registration area 82.2 per cent; in 1933 both areas had been extended to include the entire country.]

Year	Births			Deaths			Estimated Totals for the United States*	
	Number	Rate per 1,000 of the Population		Number	Rate per 1,000 of the Population			
		Annual	3-year moving average		Annual	3-year moving average	Births	Deaths
1933	2,081,232	16.6	....	1,342,106	10.7	....	2,081,000	1,342,000
1932	2,074,042	17.4	17.3	1,308,529	10.9	10.9	2,178,000	1,360,000
1931	2,112,760	18.0	18.1	1,322,589	11.1	11.1	2,232,000	1,374,000
1930	2,203,958	18.9	18.6	1,343,358	11.3	11.4	2,328,000	1,396,000
1929	2,169,920	18.9	19.2	1,386,363	11.9	11.8	2,291,000	1,448,000
1928	2,233,149	19.7	19.7	1,378,675	12.1	11.8	2,368,000	1,446,000
1927	2,137,836	20.6	20.3	1,236,949	11.4	11.9	2,440,000	1,352,000
1926	1,856,068	20.6	20.9	1,285,927	12.2	11.8	2,412,000	1,428,000
1925	1,878,880	21.4	21.6	1,219,019	11.8	12.0	2,467,000	1,360,000
1924	1,930,614	22.6	22.2	1,173,990	11.8	12.0	2,534,000	1,328,000
1923	1,792,646	22.4	22.5	1,193,017	12.3	12.0	2,478,000	1,360,000
1922	1,774,911	22.5	23.1	1,101,863	11.8	11.9	2,456,000	1,290,000
1921	1,714,261	24.3	23.5	1,032,009	11.6	12.2	2,622,000	1,253,000
1920	1,508,874	23.7	....	1,142,558	13.1	....	2,522,000	1,389,000

* Based on the assumption that the rates per 1,000 are the same as for the Registration Area.

POPULATION CLASSIFICATIONS

Urban.—The total population returned in the 1930 census was 122,775,046. Of this number, 68,954,823, or 56.2 per cent, were living in urban territory, which includes all cities and other incorporated places having 2,500 inhabitants, together with a few other places classified as urban under a special rule. The percentage of the population urban in 1920 was 51.4; in 1910, 45.8; in 1900, 40.; in 1890, 35.4; and in 1880, the earliest year for which figures are available on the present basis, 28.6.

Rural.—All population living outside the urban territory, as defined above, is classified as rural. The rural population in 1930 was 53,820,223, comprising 30,157,513 persons living on farms in rural territory (rural-farm population), and 23,662,710 not living on farms (rural-nonfarm or ''village'' population).

Family Status.—The term ''family,'' as it has been used in the Census Reports for several decades, signifies a group of persons, whether related by blood or not, who live together as one household, usually sharing the same table. While most of the 1930 tabulations have been made for private families alone, excluding those groups not made up of related persons, it is necessary for comparative purposes to employ the broader definition. There were 29,904,663 private families in 1930, and 75,178 quasi-family groups (mainly institutions, hotels, and lodging houses) which would have been included in the count of families under the rules employed in 1920 and earlier censuses, making a total of 29,979,841, which may be compared with 24,351,676 families or households reported in 1920. The average population per family on this more inclusive basis was 4.1 in 1930, 4.3 in 1920, 4.5 in 1910, 4.7 in 1900, and 4.9 in 1890. There has thus been a decline in the average population per family amounting to two-tenths of a person per decade since 1890.

The total population in 1930 was distributed according to family status as follows: 114,019,010 related persons in private families, including 2,357,463 in 1-person families; 2,962,861 persons in quasi-family groups; 4,961,193 lodgers in private families; 523,922 servants living in private families not having lodgers (absolute minimum of 1 per family), and 308,060 other persons, made up chiefly of additional servants (in families having lodgers, and excess over 1 per family) and the small number of "guests" and other non-related, non-lodger persons enumerated with the private families.

Families by Type.—In a tabulation made subsequent to the completion of the regular 1930 Census Reports, families have been classified into types or classes based on the sex and marital condition of the head, with further subdivision according to the number of children under 21 years of age in the family, as shown in the table below. The figures for broken families, in particular, are of special significance. It may be noted that widows with one or more children were nearly three times as numerous as widowers with children; that women living apart from their husbands and supporting children were likewise three times as numerous as men in similar status, and that the number of divorced women returned with dependent children was more than four times the number of divorced men similarly returned. The final column of the following table gives the number of 1-person families included in the total, which may be of assistance in the interpretation of the other data.

FAMILIES BY TYPE, FOR THE UNITED STATES: 1930

[Data represent white and Negro families only, omitting those of "other races," and omitting also the small number for which marital condition of head was not reported.]

Marital Condition and Sex of Head of Family	Total	Families having Specified Number of Children under 21 Years Old				One-person Families
		None	1	2	3 or More	
All Families	29,490,174	11,469,449	6,158,828	4,785,370	7,076,527	2,300,7 9
MAN HEAD	25,747,742	9,218,825	5,518,526	4,402,614	6,607,777	1,120,561
Married, wife present	23,352,990	7,447,328	5,254,863	4,246,459	6,404,340	....
Married, wife not present	288,153	199,012	34,547	22,874	31,720	154,526
Widowed	972,266	582,827	147,377	100,193	141,869	330,146
Divorced	130,828	101,279	14,803	8,197	6,549	81,657
Single	1,003,505	888,379	66,936	24,891	23,299	554,232
WOMAN HEAD	3,742,432	2,250,624	640,302	382,756	468,750	1,180,148
Married, husband not present	400,695	159,851	91,710	64,625	84,509	92,891
Widowed	2,534,630	1,479,577	447,209	267,502	340,342	695,190
Divorced	235,893	106,340	60,342	36,724	32,487	72,390
Single	571,214	504,856	41,041	13,905	11,412	319,677

Color and Nativity.—The population and the number of families are classified by color and nativity in the table (p. 552). In this table a family whose head is a foreign-born white person is classified as foreign-born white, and so on. It may be noted that the percentage of all families classified as foreign-born white is much higher than the corresponding percentage of the population. This results from the fact that most of the children in the foreign-born white families have been born in the United States and are, therefore, classified as natives of foreign or mixed parentage.

POPULATION AND FAMILIES BY COLOR AND NATIVITY: 1930

Color and Nativity	Population		Families	
	Number	Per Cent	Number	Per Cent
All classes	122,775,046	100.0	29,904,663	100.0
White	108,864,207	88.7	26,705,294	89.3
Native	95,497,800	77.8	20,968,803	70.1
Native parentage	70,136,614	57.1	15,507,993	51.9
Foreign or mixed parentage	25,361,186	20.7	5,460,810	18.3
Foreign-born	13,366,407	10.9	5,736,491	19.2
Negro	11,891,143	9.7	2,803,756	9.4
Other races	2,019,696	1.6	395,613	1.3
Mexican	1,422,533	1.2	277,700	0.9
Indian	332,397	0.3	65,709	0.2
Chinese	74,954	0.1	18,526	0.1
Japanese	138,834	0.1	26,855	0.1
All other	50,978	....	6,823	....

Age.—The age classification in the census is based on age at last birthday, that is, age in completed years. The 1930 population of the United States is distributed by 5-year age periods in the following table, which gives also the percentage distribution by age for each census from 1890 to 1930.

POPULATION OF THE UNITED STATES BY AGE AND SEX, WITH AGE DISTRIBUTION: 1890 TO 1930

[Per cent not shown where less than 0.1]

Age (years)	Number, 1930			Per cent distribution				
	Total	Male	Female	1930	1920	1910	1900	1890
All ages	122,775,046	62,137,080	60,637,966	100.0	100.0	100.0	100.0	100.0
Under 5	11,444,390	5,806,174	5,638,216	9.3	10.9	11.6	12.1	12.2
Under 1	2,190,791	1,112,171	1,078,620	1.8	2.1	2.4	2.5	2.5
5 to 9	12,607,609	6,381,108	6,226,501	10.3	10.8	10.6	11.7	12.1
10 to 14	12,004,877	6,068,777	5,936,100	9.8	10.1	9.9	10.6	11.2
15 to 19	11,552,115	5,757,825	5,794,290	9.4	8.9	9.9	9.9	10.5
20 to 24	10,870,378	5,336,815	5,533,563	8.9	8.8	9.8	9.7	9.9
25 to 29	9,833,608	4,860,180	4,973,428	8.0	8.6	8.9	8.6	8.3
30 to 34	9,120,421	4,561,786	4,558,635	7.4	7.6	7.6	7.3	7.3
35 to 39	9,208,645	4,679,860	4,528,785	7.5	7.4	7.0	6.5	6.2
40 to 44	7,990,195	4,136,459	3,853,736	6.5	6.0	5.7	5.6	5.1
45 to 49	7,042,279	3,671,924	3,370,355	5.7	5.5	4.9	4.5	4.4
50 to 54	5,975,804	3,131,645	2,844,159	4.9	4.5	4.2	3.9	3.7
55 to 59	4,645,677	2,425,992	2,219,685	3.8	3.4	3.0	2.9	2.7
60 to 64	3,751,221	1,941,508	1,809,713	3.1	2.8	2.5	2.4	2.3
65 to 69	2,770,605	1,417,812	1,352,793	2.3	2.0	1.8	1.7	1.6
70 to 74	1,950,004	991,647	958,357	1.6	1.3	1.2	1.2	1.1
75 to 79	1,106,390	547,604	558,786	0.9	0.8	0.7	0.7	0.6
80 to 84	534,676	251,138	283,538	0.4	0.4	0.3	0.3	0.3
85 to 89	205,469	90,893	114,576	0.2	0.1	0.1	0.1	0.1
90 to 94	51,664	20,431	31,233	....	....	....	....	....
95 to 99	11,033	4,283	6,750	....	....	....	....	....
100 and over	3,964	1,403	2,561	....	....	....	....	....
Age unknown	94,022	51,816	42,206	0.1	0.1	0.2	0.3	0.3

Among the most significant facts brought out by the comparative figures is the decline in the percentage of the population under 5 years of age from 12.2 in 1890 to 9.3 in 1930, with a similar though not quite so marked decline in the proportion of children 5 to 9. There are, of course, counterbalancing changes at the other end of the age scale, persons 65 to 69 years old forming 2.3 of the population in 1930, as compared with 1.6 in 1890, with similar increases for the older groups.

For many purposes it is desired to know the whole number of persons either above or below a stated age—for example, the number of children under 15 or the number of persons over 70. As a convenient source for such information a series of cumulative age groups are presented in the following table:

CUMULATIVE AGE GROUPS: 1930

Age (years)	Number	Per Cent
All known ages*....	122,681,024	100.0
Under 1..........	2,190,791	1.8
Under 5..........	11,444,390	9.3
Under 10..........	24,051,999	19.6
Under 15..........	36,056,876	29.4
Under 18..........	43,015,712	35.1
Under 20..........	47,608,991	38.8
Under 21..........	49,831,422	40.6
25 and over........	64,201,655	52.3
35 and over........	45,247,626	36.9
45 and over........	28,048,786	22.9
55 and over........	15,030,703	12.3
60 and over........	10,385,026	8.5
65 and over........	6,633,805	5.4
70 and over........	3,863,200	3.1
75 and over........	1,913,196	1.6
80 and over........	806,806	0.7
85 and over........	272,130	0.2

* Excludes 94,022 persons of unknown age.

Gainful Workers. — Persons 10 years old and over who usually work at a gainful occupation, even though temporarily unemployed at the time of the Census, are classified as gainful workers. The whole number of gainful workers returned in 1930 was 48,829,920. This number included both persons working for wages or salaries and persons conducting business on their own account, such as farmers and small merchants. Of the total male population 10 years old and over, 76.2 per cent were returned as gainful workers, and of the female population, 22.0 per cent. Significant changes took place between 1920 and 1930 in the number and percentage of children under 18 years of age who were gainfully employed, as indicated in the table (p. 554), which gives the percentage of gainful workers in each age group for 1930 and 1920. Special significance attaches also to the percentages shown as following a gainful occupation in the ages past middle life. These percentages indicate that the age of 40 may not be, as is often stated, the ''deadline'' for men seeking employment, since the proportion gainfully occupied in 1930 was almost as high for men 40 to 44 years old (97.6) as for men 35 to 49 (97.7). Further, of those 45 to 49 years old, 97.2 per cent were occupied, and of those 50 to 54 years old, 95.7 per cent. In fact, up to age 60 the dimunition in this percentage is not much more than what would result from the increasing number of cases of actual physical disability.

STATISTICAL SUMMARIES

Population data under a number of other important classifications, such as marital condition, literacy, country of origin, and mother tongue, are contained in the articles on population in THE AMERICAN YEAR BOOK for 1932 and 1933 (pp. 523-531), (pp. 577-583). The most compact official publication providing a fairly complete summary of the population statistics is the *Abstract of the Fifteenth Census.* A briefer set of summary tables is contained in the *Statistical Abstract,* which may be available in some libraries not having the *Census Abstract.* The full reports of the 1930 population census are contained in six volumes, as follows:

Volume I gives the total population without classification for States, counties, cities, towns, villages, townships, etc. This is the most widely used of all the census volumes.

Volume II is the general report on population, and contains the most detailed presentations for all subjects except occupations and families. Statistics are presented for States and for cities of 25,000 or more.

Volume III, Parts 1 and 2, contains the classified data by States for counties and the smaller incorporated places, with a brief presen-

XIV. IMMIGRATION AND POPULATION

PERSONS GAINFULLY OCCUPIED, BY AGE AND SEX: 1930 AND 1920

SEX AND AGE	MALE			FEMALE		
	Total Population	Gainfully Occupied		Total Population	Gainfully Occupied	
		Number	Per Cent		Number	Per Cent
1930						
10 years and over	49,949,798	38,077,804	76.2	48,773,249	10,752,116	22.0
YEARS						
10 to 15	7,223,425	460,742	6.4	7,077,151	206,376	2.9
10 to 13	4,862,291	162,260	3.3	4,760,201	73,068	1.5
14	1,206,486	110,839	9.2	1,175,899	46,821	4.0
15	1,154,648	187,643	16.3	1,141,051	86,487	7.6
16	1,181,920	386,511	32.7	1,185,395	201,306	17.0
17	1,157,150	577,983	49.9	1,138,672	313,041	27.5
18 and 19	2,264,107	1,599,768	70.7	2,329,172	942,445	40.5
20 to 24	5,336,815	4,799,505	89.9	5.533,563	2,347,548	42.4
25 to 44	18,238,285	17,776,868	97.5	17,914,584	4,546,676	25.4
25 to 29	4,860,180	4,714,266	97.0	4,973,428	1,541,411	31.0
30 to 34	4,561,786	4,454,400	97.6	4,558,635	1,112,927	24.4
35 to 39	4,679,860	4,571,641	97.7	4,528,785	1,047,601	23.1
40 to 44	4,136,459	4,036,561	97.6	3,853,736	844,737	21.9
45 to 64	11,171,069	10,506,649	94.1	10,243,912	1,915,104	18.7
45 to 49	3,671,924	3,569,094	97.2	3,370,355	706,976	21.0
50 to 54	3,131,645	2,996,041	95.7	2,844,159	559,050	19.7
55 to 59	2,425,992	2,256,771	93.0	2,219,685	383,293	17.3
60 to 64	1,941,508	1,684,743	86.8	1,809,713	265,785	14.7
65 and over	3,325,211	1,938,749	58.3	3,308,594	266,218	8.0
65 to 69	1,417,812	1,072,900	75.7	1,352,793	154,142	11.4
70 to 74	991,647	570,233	57.5	958,357	72,669	7.6
75 and over	915,752	295,616	32.3	997,444	39,407	4.0
Unknown	51,816	31,029	59.9	42,206	13,402	31.8
1920						
10 years and over	42,289,969	33,064,737	78.2	40,449,346	8,549,511	21.1
YEARS						
10 to 15	6,294,985	714,248	11.3	6,207,597	346,610	5.6
10 to 13	4,336,009	258,259	6.0	4,258,863	119,804	2.8
14	1,033,297	174,683	16.9	1,012,968	82,911	8.2
15	925,679	281,306	30.4	935,766	143,895	15.4
16 years	976,834	501,134	51.3	996,124	277,823	27.9
17	926,033	602,322	65.0	929,140	331,369	35.7
18 and 19	1,845,246	1,443,968	78.3	1,895,734	802,235	42.3
20 to 24	4,527,045	4,121,392	91.0	4,749,976	1,809,075	38.1
25 to 44	16,028,920	15,579,586	97.2	15,249,602	3,417,373	22.4
45 to 64	9,114,960	8,552,175	93.8	7,915,205	1,352,479	17.1
65 and over	2,483,071	1,492,837	60.1	2,450,144	196,900	8.0
Unknown	92,875	57,075	61.5	55,824	15,647	28.0

tation for townships or other minor civil divisions.

Volume IV contains the occupation data for States, with figures for cities of 25,000 or more.

Volume V is the General Report on Occupations. This report presents statistics for States and for cities of 100,000 or more; and in the final chapter it gives a classification of gainful workers in the United States as a whole by industry in combination with occupation.

Volume VI presents the data on families and contains figures for States, counties, and incorporated places of 2,500 or more.

There is available a *Topical Index* covering not only the six volumes listed above, but also the corresponding volumes of the censuses of 1920, 1910, and 1900.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Colonization Society, 516 Colorado Bldg., Washington, D. C.

Committee of One Thousand, 25 E. 26th St., New York City.

Naturalization Aid League, 175 E. Broadway, New York City.

North American Civic League for Immigrants, 287 Fourth Ave., New York City.

Scripps Foundation for Research in Population Problems, Miami University, Oxford, O.

RACES

American Ethnological Society, American Museum of Natural History, New York City.

American Jewish Committee, 171 Madison Ave., New York City.

Ancient Order of Hibernians, 937 W. 54th Place, Chicago, Ill.

Bavarian National Assn., of N. A., 758 Broadway, Buffalo, N. Y.

Centro Hispano-Americano, 353 W. 17th St., New York City.

Centro Vasco Americano Society, 48½ Cherry St., New York City.

English-Speaking Union of the U. S., 19 W. 44th St., New York City.

Federation De L'Alliance Francaise, 32 Nassau St., New York City.

Federation of Polish Jews In America, 225 W. 34th Street, New York City.

Foreign Language Publishers' Assn. of the U. S., Inc., 110 E. 42nd St., New York City.

Hebrew Sheltering and Immigrant Aid Society of America, 425 Lafayette St., New York City.

Holland Society of N. Y., 90 West Street, New York City.

Huguenot Society of America, 2 W. 45th St., New York City.

Hungarian Society of N. Y., 1440 Broadway, New York City.

Indian Rights Assn., 995 Drexel Building, Philadelphia, Pa.

Japanese Assn., Inc., 1819 Broadway, New York City.

Jewish Council of Greater N. Y., 103 Park Ave., New York City.

Jewish National Workers' Alliance of America, 404 Fourth Ave., New York City.

Lake Mohonk Indian Conference, Mohonk Lake, N. Y.

Lithuanian Alliance of America, 307 W. 30th St., New York City.

National Assn. for Advancement of Colored People, 69 Fifth Ave., New York City.

Netherland American Foundation, 274 Madison Ave., New York City.

Ordine Fieli D'Italia in America, 225 Lafayette St., New York City.

Polish Federation of New York City, Inc., 705 Courtlandt Ave., New York City.

Polish National Alliance, 735 N. Water Street, Milwaukee, Wis.

Russian National Society, 5 Columbus Circle, New York City.

Sons of Italy, 231 E. 14th St., New York City.

United Roumanian Jews of America, Inc., 799 Broadway, New York City.

Young Judea, Inc., 111 Fifth Ave., New York City.

Young Men's Hebrew Assn., 71 W. 47th St., New York City.

Young Women's Hebrew Association, 71 W. 47th Street, New York City.

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DIVISION XV

SOCIAL PROBLEMS AND CONDITIONS

CRIME CONDITIONS AND TREATMENT

By Bennet Mead

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POLICE STATISTICS

Growth of Area.—In the United States, the national collection and publication of crime statistics received from local police departments has now been carried on since January, 1930. This project was first begun by the Committee on Uniform Crime Records of the International Association of Chiefs of Police. Since Sept. 1, 1930, it has been carried on by the Division of Investigation, U. S. Department of Justice. Until December, 1931, these police statistics were published on a monthly basis. Since then, they have been published quarterly. The total number of reporting units increased from 399 in January, 1930 to 1,536 for the first six months of 1932 and to 1,645 for the first six months of 1934. The population represented increased from about 20,000,000 for January, 1930, to more than 62,000,000 for the first six months of 1934. The information is especially complete for urban places, covering, for the first 6 months of 1934, 95 per cent of the population living in cities and towns of 10,000 or more.

Character of Data.—In spite of strong efforts to improve the accuracy of these crime statistics, critical inspection still discloses errors in the returns. But in spite of unavoidable limitations as to accuracy, these police statistics are of immense value to all agencies concerned with crime and its treatment.

Major Offenses: 1931, 1932, 1933 and 1934.—The table below shows the fluctuations in the number of certain major offenses for the past four years. Comparison of the daily average numbers of offenses, in the 69 cities represented, shows increases for burglary, larceny, homicide (non-negligent), rape, and aggravated assault, during the first three years, followed by a decided reduction in 1934 for nearly all offense groups represented. Decreases are shown for each of the four years, for robbery and auto theft. Manslaughter by negligence also decreased each year until 1934, when this offense group showed a striking increase. It seems reasonable to consider the marked increases in burglary and larceny through 1933 as largely due to the pressure of hardships resulting from the economic collapse of the past five years. Likewise, although conclusive evidence is lacking, the reductions in 1934 for most of the principal offense groups, may reasonably be attributed to the slight improvement in economic conditions which appears to have taken place during the past year, and to the greatly increased expenditures for relief in 1934. The decreased use of automobiles resulting from the depression may well account for the decrease in auto theft, and for the smaller number of homicides by negligence, practically all of which are incidental to automobile accidents. The last column of the table below shows the incidence of the major offenses relative to population for the first six months of 1934.

Variation by Size of City.—Analysis of crime rates per 100,000 general population, for major offenses against property, in six different groups of cities, classified according to size, discloses that in 1934, as in the two previous years, crime rates tend to increase as the size of cities increases. For robbery and auto theft, there were no exceptions to this rule. For burglary the rate was lower for cities over 250,000 than for cities between 50,000 and 250,000 population; and for larceny the rate was less for cities of 100,000 to 250,000 than for those of 50,000 to 100,000, and still less for those over 250,000. (This comparison is based upon "Uniform Crime Reports," *Second Quarterly Bulletin* for 1934, p. 4.).

MAJOR OFFENSES KNOWN TO THE POLICE: 1931, 1932, 1933 AND 1934*

(January to June inclusive)

Offense	Daily average number for 69 cities over 100,000 population				Ratio per 100,000 population for 1,307 cities
	1931	1932	1933	1934	1934
Offenses primarily against property:					
Robbery	53.6	50.0	46.7	38.0	40.1
Burglary—breaking and entering	184.3	201.3	204.8	194.8	160.5
Larceny—theft	393.6	400.2	425.3	417.7	355.5
Auto theft	241.8	202.2	184.5	165.2	139.7
Offenses primarily against persons:					
Criminal homicide—					
Murder and non-negligent manslaughter	4.1	4.1	4.2	4.0	3.2
Manslaughter by negligence	4.0	3.6	2.9	3.6	3.0
Rape	3.2	3.4	3.7	3.5	3.2
Assault (aggravated)	26.1	23.3	27.9	26.1	22.4

(*) Based on "Uniform Crime Reports," issued by U. S. Division of Investigation (*Second Quarterly Bulletin*, 1934, pp. 4, 6). Data on daily averages cover cities having an estimated total population of 18,931,202. Population ratios for 1934 cover cities having a total population of 56,679,644.

Strength of Police Forces.—There are strong indications that *recorded* crime rates in cities of varying size are largely affected by variations in the ratios of police officers to the population. In 1932, for example, the average number of police department employees per 1,000 population was 2.04 in cities over 250,000 population, as contrasted with 1.48 per 1,000 in cities of 100,000 to 250,000 population. In 1930, the ratio of police department employees declined steadily, with the size of the cities represented, and the ratio was only 1.10 per 1,000 population in cities of 10,000 to 25,000. (More recent data not available).

Clearances, 1933.—The first three columns of the table (p. 558) show the number and percentage of major offenses known to the police which were "cleared by arrest" during 1933. The arrest of a single offender may "clear" a number of different offenses. Statistics of "clearance" measure roughly the degree of success of the police in dealing with crime. For example, the table shows that only 28.6 per cent of the known robberies in 1933 were "cleared by arrest." This means that 71.4 per cent of the robberies known to the police remained unsolved at the end of the year. Even these offenses which are "cleared by arrest" may not, in all cases, represent effective solutions of the crimes represented, since the available evidence may not result in a court conviction.

Persons Charged: 1933.—The last

column of the table shows the number of persons charged with certain major offenses. For most offense groups here shown, ''clearances'' were outnumbered by persons charged. This is no doubt an outcome of the fact that the police often arrest more than one person in connection with a single offense. There were, however, three offense groups—robbery, burglary and auto theft—for which the clearances outnumbered the persons charged. This may be explained by the fact that some offenders are not arrested until they have committed a series of offenses, all of which are charged against them when they are finally arrested.

MAJOR OFFENSES, CLEARANCES, AND PERSONS CHARGED[1]

(Calendar Year 1933)

Offense	Total Offenses known	Offenses cleared by Arrest		Persons charged
		Number	Per cent of total known	
Offenses primarily against property:				
Robbery	34,777	9,943	28.6	9,562
Burglary—breaking and entering[2]	108,249	25,723	23.8	21,933
Larceny—theft[3]	217,895	51,452	23.6	52,293
Auto theft[2]	63,587	9,055	14.2	8,421
Offenses primarily against persons:				
Criminal homicide—				
Murder and non-negligent manslaughter	2,052	1,576	76.8	1,921
Manslaughter by negligence	1,372	1,173	85.5	1,518
Rape	1,784	1,438	80.6	1,661
Assault (aggravated)	13,636	9,390	68.9	10,109

(1) Based mainly upon annual reports for 762 cities, having a total population of 30,288,970. (*See* Note (2).) Source: "Uniform Crime Reports," (*First Quarterly Bulletin*, 1934, pp. 17, 21, 22.)

(2) Figures do not cover quite all of the 762 cities represented elsewhere in this table.

HOMICIDE DEATHS

During the year 1933 there were more than 12,000 officially recorded homicides in the United States. In 1933, for the first time, these census mortality statistics for the death registration area covered the entire country. The homicide death rate in 1933 was 9.6 per 100,000 population, as compared with rates of 9.2 for 1932, 9.3 for 1931, 9 for 1930, and 8.4 for 1929. These rates are more representative of conditions in all parts of the country than the police statistics of criminal homicide, which do not cover the rural areas or small towns to the same extent as the larger urban areas. But the census mortality figures include ''justifiable'' homicides, as well as criminal homicides. Hence they should not be considered as equivalent to the number of criminal homicides.

STATISTICS OF PRISONERS

Annual Census.—A combined two-year Census Bureau report entitled ''Prisoners in State and Federal Prisons and Reformatories, 1931 and 1932,'' was published early in 1934. Summary figures for 1933 have also been published. Comparable census data on prisoners are now available for eight consecutive years beginning with 1926. From figures in these reports, the total population of state and Federal prisons and reformatories may be estimated as about 145,000 on Jan. 1, 1935. It is also estimated that the number of prisoners received from the courts by these institutions was about 67,000 in 1933 and less than 65,000 in 1934. The latest census data on prisoners indicate, for the first time in many years, a definite decline in the prison population of state and Federal institutions, which had been rapidly expanding previously.

Decennial Census of Jail Prisoners.—For the year 1933, the Census Bureau has collected statistics not only for the state and Federal institutions covered by the annual census, but also for prisoners in jails, workhouses, and other local institutions. In general, this information will be similar to the jail statistics in the previous decennial census report, "Prisoners, 1923." Summary figures have already been published.

CRIMINAL COURT STATISTICS

State Courts.—The U. S. Census Bureau has published criminal trial court statistics for the year 1932, covering 16 states and the District of Columbia. Similar statistics for 1933, covering more than 30 states, are in preparation. This work has been done according to the methods developed by the Institute of Law of The Johns Hopkins University. The Institute had collected and published 1930 data for two states, Ohio and Maryland, and data for 1931 covering 6 states. It is to be hoped that the Census Bureau can steadily expand the area covered by these valuable court statistics, until they cover the entire country.

Procedural Outcome. — The 1932 Census statistics of trial courts in 15 states and the District of Columbia show procedural outcomes for 97,371 defendants who were disposed of during the year. Of these, 33.5 per cent were disposed of without conviction, while 66.5 per cent were found guilty. It is interesting to note that the Census statistics fully support the findings in numerous special studies of the administration of justice in various states and localities, as regards the diminishing importance of the jury in the actual operation of the courts. It appears that only 11.5 per cent of these defendants were disposed of through jury trials. This group comprised 3.7 per cent who were acquitted by juries and 7.8 per cent found guilty by juries. In their distribution by procedural outcome, the Census statistics show remarkably wide variations among the states represented. Considerable differences are also found among various offense groups.

Use of Imprisonment and Fines.—Out of 64,770 defendants who were sentenced, 49.8 per cent were committed to correctional institutions, including 24.8 per cent committed to state prisons and reformatories, 0.3 per cent to juvenile reformatories, and 24.7 per cent to local jails and workhouses. Fines, costs, and other money payments were the sole penalties imposed on 20.8 per cent of the total sentenced. But if we add to this group the percentage receiving both financial and other penalties, those sentenced to money payments formed 44.8 per cent of the total. Money payments were imposed in combination with imprisonment in the case of 14.1 per cent of the total, and in combination with probation or suspended sentences in the case of 9.9 per cent.

Use of Probation.—Of the grand total sentenced, 29.1 per cent were placed on probation or given suspended sentences, but of these, only 18.5 per cent were placed under supervision, while 10.6 were nominally placed on probation, but *without supervision.* This last group, of course, were not really on probation at all in any proper sense. These figures demonstrate in a striking way, both the wide use which is made of probation and the need for a more complete practical application of correct probation principles. The detailed figures by states also show in this matter very marked variations in the extent to which probation is used and in the degree in which probation supervision is provided.

New Federal Court Statistics. — The Department of Justice has inaugurated a new system of judicial statistics which will give for the first time a detailed and accurate picture of the work of the Federal courts. These new statistics, like the Census statistics of state courts, will use the defendant as the statistical unit rather than the "case" which has in the past been used as the basis for the Federal court statistics. There will also be compiled, for the first time, statistics of persons charged with Federal offenses and eliminated, or disposed of, at various stages of the preliminary procedure, and who are never considered by the Court itself. These new statistics are from Jan. 1, 1935 to date.

RECENT CRIME TRENDS

Several years ago, many criminals, and especially those in organized gangs, seemingly shifted from such lines of criminal activity as robbery, burglary, and liquor racketeering to kidnapping and extortion. Organized ''business'' racketeering also spread to many cities which had previously been comparatively free of it. Counterfeiting is another offense which has shown striking increases during recent years. These marked changes in the nature of criminal activity were apparently the result of declining profits in the bootleg liquor business. The economic collapse was also an important factor in these developments by reducing the opportunities for profit in bank and payroll robberies and in burglary. These developments stimulated a public demand for more effective law enforcement, which brought about the enactment of the so-called Federal Kidnapping Law and Extortion Act. During the past year, an extensive additional program of Federal anticrime legislation was adopted by Congress. Quite recently, the Federal drive against kidnappers and racketeers seems to have checked somewhat the drift toward these activities. There is now apparent a tendency of the criminals to shift back to liquor racketeering, as the spread of high taxes on legal liquor has tended to make the sale of illegal liquor increasingly profitable. As a result, increasing numbers of liquor law violators are being brought before the Federal courts, and the number of convictions on liquor charges is rapidly increasing.

NATIONAL CRIME CONFERENCE

In response to invitations sent out by the Attorney General, several hundred delegates assembled in Washington on Dec. 10, 1934 for a four-day Conference on Crime. This Conference included representatives of a wide variety of official agencies and civic organizations concerned with crime and its treatment. The Conference was addressed by the President and by many important law enforcement officials of the Federal Government and of the states. Papers were also presented by a number of leading criminologists, police experts, and specialists in the treatment of crime and delinquency. Resolutions were adopted urging the establishment by the Federal Government of a National Institute of Criminology, to be located in Washington, which would serve as a clearing house for information on law enforcement matters, and as a training school for Federal, state and local officers engaged in the treatment, prevention and repression of crime. The Conference also recommended that it be continued on a permanent basis, to meet periodically at call of the Attorney General. Specific resolutions adopted by the Conference constitute a valuable outline of fundamental principles for the more effective handling of the crime problem. Perhaps the most significant feature of this Conference was the wide-spread recognition of the leading part which has been assumed by the Federal Government in the field of law enforcement. This leadership is apparent, not only in the field of police activity, where the Federal Division of Investigation has achieved remarkable success in its campaign against kidnapping and interstate criminals, but also in the more constructive phases of crime treatment. Here the Federal Government is steadily developing standards and procedures in correctional treatment, probation and parole.

PRISONS AND PENAL INSTITUTIONS

BY F. LOVELL BIXBY

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GENERAL TRENDS

The year was not exciting in the history of American penology. There were fewer spectacular events and public interest in criminal matters shifted from penal treatment to the apprehension of offenders.

The raid on the New York City Penitentiary, Welfare Island, by the newly appointed Commissioner of Correction, Austin MacCormick, attracted the greatest amount of public attention. Unfortunately, while this courageous exposure of prison corruption was conducive of better conditions in the New York City institutions, it was not far reaching in its effect upon penal conditions all over the country.

A number of states, stimulated largely by Federal loans, carried on construction projects during the year which provide safer, more sanitary, and more adequate living quarters for prisoners. In spite of this, the United States as a whole continues to show housing conditions which range from the worst to the best, and the need of uniform standards is evident.

During 1933 the prison population decreased somewhat as compared with the three previous years. Complete figures had not been compiled for 1934 at the time of writing but there were indications that the trend was upward again during that year.

PRISON LABOR

The most discouraging development of the year came in the field of prison labor. For many years the forces of both capital and labor have been opposed to the employment of prisoners in the production of goods to be sold on the open market. The article on "Prisons and Penal Conditions" in THE AMERICAN YEAR BOOK for 1933 sums up this struggle and outlines in some detail the provisions of a Compact of Fair Competition for Prison Industries which was adopted by a large number of states and approved by the President of the United States to be administered under the NRA by the Prison Labor Authority. The chief object of this Compact was to remove the baneful effects of prison labor alleged to result from dumping prison-made goods on the open market at cut-throat prices. It provided that prison-made goods could not be sold at a price lower than a fair current market price and that prison contractors must be charged an amount equal to the cost per unit for overhead and labor in private industry. The signing of the Compact was hailed as a "hopeful solution to an old problem." Prison labor seemed to be entering a new era with every reason to believe that the steady increase of prisoner idleness had been checked and would gradually decline under the cooperative arrangement with Industry and Labor.

As a matter of fact, during a year marked by a sincere attempt on the part of prison officials to live up to the Compact, the attacks on prison labor were more vigorous and ingenious than ever before. James V. Bennett, Secretary of the Association of States Signatory to the Prison Labor Compact, describes the campaign against prison labor in the following excerpt from a paper entitled "Prison Labor at the Cross-Roads": "Innumerable attempts have been made to obtain a modification of General Johnson's ruling that all codes of fair competition under the National Recovery Administration must be in harmony with the prison labor compact; amendment after amendment has been proposed to existing trade practice restrictions which would in effect place further burdens upon the prison. Unfair propaganda, relative to prison-made goods and the effect of the Hawes-Cooper Bill, have been circulated which have resulted in certain large wholesalers and retailers refusing not only to sell prison-made goods but even to deal with any company or concern which had any connection with the merchandising of prison products. Attempts, and successful ones too, have been made to boycott prison products. Some companies refuse to sell raw materials to the prisons and everywhere misinformation has been spread. . . . ''

In the same paper Mr. Bennett estimates that scarcely 25% of all prisoners were employed at useful tasks in 1934. The disastrous effects of widespread idleness among prisoners cannot be overestimated. It not only breeds discontent and riots in the prisons but what is worse, a period of unemployment in prison tends to make a man unemployable after release. Penal authorities are unanimous in the opinion that prisoners must work whether it be under the State-use System, a regulated contract system, or some other plan.

DEVELOPMENTS IN CLASSIFICATION

Among the most encouraging features of 1934 were the developments in the field of Classification in Illinois, Pennsylvania, and the Federal penal system. These three major prison systems adopted systematic classification programs which included some degree of specialization of institutions as well as provision for detailed individualized study and treatment. The Pennsylvania and the Federal plans are centered around institution classification committees made up of members of the regular prison staffs while the Illinois plan provides for a central receiving station with a specialized classification clinic.

The diversification of the Federal prison system was advanced substantially by the opening of Alcatraz Penitentiary as a unit for the most intractable and dangerous offenders, the Department of Justice Medical Center, and the United States Southwestern Reformatory. With these new institutions, the Federal prison system is comprised of four ''regular'' penitentiaries, one penitentiary for the most dangerous offenders, one penitentiary for narcotic cases, two reformatories for men, one reformatory for women, a medical center for mentally and physically defective prisoners, a reformatory camp, four prison camps and four jails. It was expected that within a few months the first United States Narcotic Farm, to be operated under the United States Public Health Service, would be ready to receive patients. This will still further diversify the facilities of the United States Bureau of Prisons since the law establishing the Farm authorizes the Attorney General to transfer certain classes of drug addicts, after careful classification, to that institution.

SUMMARY OF PRESENT TENDENCIES

The first volume of the fourth edition of the *Handbook of American Prisons and Reformatories,* published by the Osborne Association of New York City, contains a summary of present day tendencies as observed by their field workers in a comprehensive survey of 63 major penal institutions in 17 of the northeastern states. The following quotations indicate some of the more important findings:

''A summary of the present tendencies in the methods of dealing with institutionally confined adult offenders, as revealed by the survey covered by this edition of the Handbook, shows unquestionable progress along many lines, although this progress is neither universal nor equally evident in all phases of penal administration. There is no doubting that the prison riots of 1929 and 1930 upset the complacent acceptance of established principles and gave a new impetus to the application of more humane and scientific methods. On the other hand, efforts toward the reduction of government expenditures, which have characterized the period since 1930, have operated to retard progress in certain directions.''

''There is a distinct trend toward centralized control of institutions with a preference for the system which places authority in the hands of a single individual appointed by the governor for a period co-terminous with his own tenure of office. . . . ''

''There has been a definite attempt to raise the standard of institutional personnel in many states, and the United States Bureau of Prisons, New Jersey, New York, and Maryland have established schools for the systematic training of guards, while Harvard University has established a school for prison administrators. A significant change in the attitude of prison wardens is one of the most hopeful features of the present era. While it is true that wardens as a class have been censured for prison conditions which were due to shortsighted legislative policies, it is also true that as a class they have tended to be reactionary and narrow in their point of view. While there are still certain individuals who show these characteristics, the majority of the wardens and superintendents of the institutions represented in this volume are men of ability and sincere purpose, who are receptive to new ideas. . . ''

''With a few exceptions, discipline is more humane than formerly, and in some instances there has been marked progress toward a truly educational discipline that has the ultimate social rehabilitation of the prisoner as its goal. In the institutions where this is true, detailed rules and regulations have been given up in favor of a few general rules consistent with the standards of non-institutional society; a positive factor has been introduced through the extension of privileges on a promotional basis; punishments have been diversified; and, most important of all, more attention is paid to the nature of the offender than to the nature of the offense. Unfortunately, the number of such institutions is small and in the majority of prisons and reformatories covered by this volume discipline remains essentially negative with obedience to local rules as its chief objective. Solitary confinement is still the common punishment for major offenses while cuffing-up, stripes, and other brutal and degrading practices have not disappeared. . . .''

''Case studies of individual prisoners are part of the program of an increasing number of institutions, but these studies find their widest use in connection with parole, and progress in individualized treatment on the basis of scientific studies is, in many cases, more apparent than real. For the most part this is due to a tendency to keep professional and administrative functions entirely separate, instead of recognizing that if the results of classification studies are to be the basis for administrative action, the two must be closely integrated. This criticism should not be allowed to obscure the important fact that case studies, of a more or less complete kind, are rapidly taking the place of the old ''blotter-sheet'' type of prison records. The use of the new information will inevitably follow the discovery of its practical value.

''Special facilities for certain atypical groups, particularly the insane, show a gratifying increase, but only a few states have taken definite steps to meet the problem of the psychopathic and defective delinquent prisoners.

''A genuine advance in prison medical service is indicated by several new hospitals, increased medical personnel, more complete and thorough examinations, and higher standards of treatment. Institution wardens and superintendents are looking more and more to their medical officers for assistance in matters of general sanitation and dietary.

''Likewise, the field of academic education shows a general upward trend. Old-fashioned grade-school curricula and methods are giving way to those more suited to the needs and interests of adults. Individualized instruction, through correspondence courses and in the classroom, is the predominating note in the reörganization of the educational work in a large number of institutions. Vocational education has not entirely kept pace with academic. Many institutions still preserve the fiction of 'trade training,' while others, realizing that it is only fiction, have given it up without having anything to substitute in its place. . . ''

A survey of southern and western penal institutions by the Osborne Association, which has not yet been published, will reveal that in those sections of the country progress has been less rapid.

XV. SOCIAL PROBLEMS AND CONDITIONS

PRIVATE SOCIAL WORK

By Joanna C. Colcord

Russell Sage Foundation

GENERAL

Social work in America has been traditionally under private auspices. The nature and extent of public assumption of duties in this field are covered in the article on Public Social Work (p. 571). From time to time, large sections of work with and for disadvantaged citizens have passed from private to public hands. Examples of this are the assumption by the majority of the states of the function of relief to dependent mothers with children, compensation enforced by government for disabled workmen, and more recently, public care in their own homes for the aged.

The care of dependent, delinquent and neglected children outside their own homes has always been shared by both private agencies and government, as has the care of dependent families. The latter function, as far as it affects the able-bodied unemployed, has during the last few months passed almost entirely over into public control, and the change is probably a permanent one. Along with education and maintenance of the public health, home relief now takes its place as one of the recognized and responsible functions of government.

REALIGNMENT OF PRIVATE EFFORT

Citizens' Associations. — These changes mean, not the disappearance of private effort in the field of human welfare, but its realignment along other fronts. So deep-seated is the impulse to human helpfulness that it will not readily relinquish these tasks to a governmental agency, however efficient. Such surviving impulses take the form (a) of citizens' associations to cooperate with governmental agencies, to watch their performance, to give publicity to their needs, and to push for desirable legislation. Such agencies as the State Charities Aid Association of New York and the Public Charities Association of Pennsylvania are illustrations of this type of private social agency.

Organization of Private Agencies. —Or (b) the impulse to helpfulness may take the form of organization to meet needs in areas left uncovered by public assumption of responsibility. The tendency to treat all persons alike in public social work often prevents appropriate remedies being offered to individuals in distress. Public agencies, governed as they are by fixed laws, and centering as they do on relief to individuals in their own homes, and control over inmates of public institutions, are not felt to be flexible enough to meet exceptional needs. Private institutions for the care of the aged who have "seen better days," or for children requiring especially individualized treatment, still hold the loyalty of large contributing groups. The function of careful study and treatment of family disorganizations not involving a need for relief which the public agency can fill, is still largely in the hands of private family agencies. Recreation and character-building are directed by nation-wide private agencies. In almost every field of social work into which public agencies have entered, there remain some areas in which private agencies are also operating. Sometimes this is the result of endowments which keep alive institutions whose work might better be conducted under public auspices; sometimes the human impulses which carry them on are sentimental and harmful ones, as in the case of the recent epidemic of breadlines and soup-kitchens in our cities. But in the main, the work of private agencies is necessary and salutary to our present system. They cushion the angularities and bridge the gaps of public social work; they experiment with new forms of service to meet newly-recognized needs; they represent the interests of the general public in these fields, and through a more vigorous publicity than that usually exercised by departments of government, they keep the public aware of what is going on.

Training for Social Workers.—Private social agencies still remain the training-ground for professional personnel in the public service. Most of the training schools for social workers are themselves privately supported; but even when attached to state universities, the private social agencies in the vicinity are largely relied upon for supervised fieldwork training. Experience under private agencies is still demanded of persons undertaking to supervise and direct social work under government.

Community Chests.—The necessity to continue the existence of private social work in the face of greatly extended public expenditures for the same purposes seems to be well realized by the giving public. Private social and health agencies in most American cities have associated themselves into financial federations known as "Community Chests," and make a joint appeal once a year to the inhabitants of each city for funds to support their work. The national association, Community Chests and Councils, Inc., reports that 102 chests which were in operation in 1929 will this year be able to raise over 90 per cent of the amount raised just prior to the depression. Figures for these 102 cities are:

Year Raised	Amount Secured
1928	$43,284,000
1929	45,568,000
1930	48,491,000
1931	61,447,000
1932	45,197,000
1933	39,230,600
1934 (estimated)	39,600,000

Increases secured in the years prior to 1933 are undoubtedly to be ascribed to the increased need for relief funds stressed in chest campaigns before government so largely assumed the relief burden. Now that the appeal of the Chests is based upon the need for social services rather than for material relief, it is apparent that there is no real diminution in the disposition of contributors to demand and support these services.

FAMILY SOCIAL WORK

The charity organization movement, as it was first called, began in this country in 1877. The Associations for improving the Condition of the Poor, and the Provident Associations which preceded it, were in the course of years absorbed into the movement. Its distinguishing features were emphasis on individualized investigation and treatment for those in need, opposition to public relief, and support of efforts to organize more effectively the community's social work. The latter function has been largely relinquished to the Councils of Social Agencies (which include both public and private agencies.) Opposition to the public assumption of relief-giving has within recent years diminished to the vanishing point; and the name "Family Welfare Movement," adopted during the last decade signifies the concentration on its remaining objective, the upbuilding of family life. Repressive measures no longer figure largely in its program; doing things for or to people has largely given way to working with them in the attempt to understand the nature of their problems and to help them find a satisfactory way out of their difficulties for themselves. So recently have they been relieved of the burden of caring for the relief needs of the community, that private family agencies are still uncertain where their chief opportunity is going to lie. Some of the more enterprising among them are exploring the possibilities of consultation centers on family problems of finance and intro-family relationships, for "marginal" families or those above the poverty line.

The typical family society is non-sectarian and non-political. It is governed by a board of socially minded lay men and women, elected by an annual meeting of the membership. Its working force consists of a paid director, one or more trained supervisors and visitors, visitors-in-training, and volunteers who serve under the direction of the paid staff. In all but a few cities, it secures its funds through the joint campaign of the Community Chest. District offices are maintained in the larger societies, with an advisory ''case committee'' of laymen attached to each. Families in charge of each visitor range from twenty to sixty. The systems of accounting and case recording are careful and thorough. Close cooperation is maintained with the public family agency and with other private agencies active with the same families. This cooperation is aided by a central registry, usually maintained by the Council of Social Agencies, where all agencies engaged in any sort of work with families and individuals register new applications and learn what other agencies have knowledge of the same family. Some relief funds are available in the typical family agency, but the bulk of its work consists in skilled service to those who need it, and not in relief-giving.

While entirely autonomous and locally supported, private family agencies, to the number of 208, which can meet the membership requirements of the national association, called the Family Welfare Association of America, are members of that organization, which also includes 31 public and a few sectarian family agencies. Private family agencies are found under many names; some cling to the old titles ''Charity Organization Society'' or ''Associated Charities.'' Some have such generalized names as ''Social Welfare Bureau''; but the majority have now incorporated into their names the term ''Family Welfare'' or ''Family Service.'' (*see* also Religious Social Work p. 568).

CARE OF THE AGED AND HANDICAPPED

The aged poor are cared for outside their own or relatives' homes in publicly-supported almshouses, or in private homes for the aged or the incurably ill. These institutions have a very ancient history, both here and abroad. The unsuitability of institutional care for many aged persons has been recognized during the past 16 years by 28 states and 2 territories through the passage of old age assistance laws under which pensions may be granted to aged persons in their own homes or with private families. In 1929, 68,660 persons are estimated to have been cared for in 1,037 private institutions. In 1933, 116,000 were in receipt of public old age pensions.

Numerous private agencies exist to offer special opportunities to the blind and deaf. These include workrooms with special facilities, production of salable goods by the handicapped, provision of literature and instruction in Braille reading for the blind and in lip-reading for the deaf or hard of hearing. A number of privately-supported schools and institutions supplement the public schools for the education and vocational training of deaf-and-dumb children. Mentally handicapped persons in institutions are now very largely charges of the state, and practically no private agencies specialize in their care. (*see* Mental Hygiene, p. 587).

The physically handicapped are provided for (a) through sheltered workshops under private auspices, examples of which are the salvage operations of the Goodwill Industries in many cities, where discarded articles are reconditioned by otherwise unemployable people; and the Altro Shops in New York City where arrested cases of tuberculosis are employed making garments for hospitals and institutions. Or (b) the physically handicapped are assisted through rehabilitation activities, largely under governmental auspices, where they are re-trained for suitable occupations, maintained during the training period, and placed in private industry when possible. Cooperation in the latter process is extended by a number of privately-supported employment agencies which specialize in the placement of the handicapped.

MEDICAL SOCIAL SERVICE

Early in the present century, the hospitals and clinics of this country began the practice of adding social workers to their staffs, to make the contact between the hospital and the patient's home, and to remedy family conditions which might militate against the patient's complete recovery. The interpretation to the doctor of the patient's social conditions, and to the patient and his family of the medical treatement prescribed, constitute the major tasks of the medical social worker. In 1933, out of 1,570 hospitals which were members of the American Hospital Association, 538 had social service departments. Of these, 409 were privately supported.

PERSONNEL ADMINISTRATION IN INDUSTRY

Beginning some years ago as "industrial welfare work," this field has developed into a scientific approach to labor management. The personnel department of a large industrial concern has charge of the selection, training, transfer, promotion and discharge of workers. It also supervises any plans for medical care, sick leave, group insurance, compensation for accident, profit sharing, unemployment benefits, or retirement pensions which the firm may have in effect. It is concerned with working conditions, such as safety devices and sanitation, and manages first-aid rooms, lunchrooms, recreation facilities, and so on. It usually has a hand in negotiations with employes as to wages, hours and terms of employment. Almost all plants having 500 or more employees have departments which carry on some of the functions above listed.

LEISURE-TIME ACTIVITIES

A vast number of agencies may be listed under this general grouping. It includes such large organizations as the Boy Scouts of America, the Girl Scouts, the Campfire Girls and 4-H clubs in rural regions, as well as numerous smaller organizations with the primary purposes of promoting among young people a healthy attitude toward sports and outdoor living, inculcating habits of useful work, and developing sturdy and socialized traits of character. (*see* also Religious Social Work, p. 568). The public interest is represented in recreation by the numerous municipal, state and national parks and playgrounds. Another group of agencies concerned with the proper use of leisure time are the community centers and social settlements. A group of "residents," paid and volunteer, live in these settlements, which consist of a house or group of houses located in depressed urban areas, and equipped to give the people of the neighborhood opportunities for group recreation, study, discussion, exercise of creative abilities in art, and often vocational and avocational training. The residents identify themselves with the neighborhood, and act as leaders in the various activities of the settlement.

Holiday camps for children and grown-ups who cannot afford country vacations at their own expense are another example of forms taken by private social work in this field. They are closely related to the various types of convalescent home. Several agencies sponsored by social work and by public-spirited citizens exist to give constructive cooperation to the moving picture industry in trying to raise the esthetic and moral standards of the films.

The field of social work presented by leisure-time activities is today in a ferment of activity, stimulated in part by the availability of funds from Federal sources to provide education and constructive entertainment for the unemployed, in part by the realization that the shorter work day and week, which seem to be on the way in industry, will create more leisure for self-improvement than ever before among our working population.

Examples of national agencies which stimulate and coordinate the development of leisure-time activities and character building are the National Recreation Association with 667 affiliated local organizations and the National Federation of Settlements with 158 member agencies and 48 affiliated members.

MISCELLANEOUS SOCIAL-EDUCATIONAL WORK

Closely related to leisure-time activities are various enterprises under private auspices which lie more directly in the field of formal education for social ends. These supplement the more extensive efforts in this direction carried on under the public school system. (*see* Public Social Work, p. 571 for the recent use of relief funds in this field).

EDUCATION FOR FOREIGNERS

Courses. — Citizenship (formerly known as "Americanization") courses for foreigners include the teaching of English and simple principles of democratic government. They are usually associated with efforts to help foreigners adjust to American conditions and secure naturilization papers.

Adult Education.—Adult education starts with courses for illiterates, and extends to cover almost any known topic of interest to adult minds. As conducted by universities in the form of extension courses, it goes far beyond the boundaries of social work; but certain forms such as vocational retraining and education for wise parenthood, have been closely associated with efforts to help the underprivileged.

Vocational Training. — Vocational training is a part of most public school systems, but is also carried on by various privately endowed schools and institutions. It is closely associated with vocational guidance and the provision of scholarships to enable young people to continue their education.

RELIGIOUS SOCIAL WORK

Social work organized under religious auspices cuts across practically all the fields of work herein described, but maintains so distinct an entity that it has been set aside for separate treatment.

Catholic.—Up to the last decade, institutional treatment for children, unmarried mothers, the sick and the aged, together with a simple form of home relief carried on by the Society of St. Vincent de Paul, were the standard charitable activities of the Catholic community. Within recent years, the organization of the Catholic Charities on a diocesan basis has brought younger leaders and newer methods to the fore. About sixty of these centralized agencies are now active, with many local branches. Child placing in foster homes has been developed, and in many places service to families in their own homes has been brought in line with approved social case-work methods. Social work with immigrant groups has been greatly extended and the concepts of modern psychology and psychiatry have been employed in the protective treatment of children and young people with behavior difficulties. Training schools for social work in connection with Catholic universities have been developed, and a National Catholic Welfare Conference organized.

The use of parish halls as centers for leisure time activities is an important part of Catholic social work. Work analogous to that of the nonsectarian settlements (qv) is here carried on. Special organizations serving Catholic youth in this field are the Knights of Columbus, Catholic Boys' Brigade, Holy Name Society, Sodality of our Lady, Catholic Daughters of America, and others, all coordinated by the Catholic Youth Bureau of the National Catholic Welfare Conference.

Jewish.—No such intimate relationship exists between the social work of the Jewish community and the synagogue as between Catholic social work and the parish or diocese. Jewish social work is in effect the expression of a racial group rather than of a religious system. Its early and characteristic form was neighborly assistance to Jewish families in their own homes. In the field of family welfare and relief, Jewish agencies have been pathfinders and standard-settlers. They were among the earliest to adopt the methods of psychiatric social work; their scale of relief has been notably higher than that of other private agencies. About 60 Jewish family agencies with full time salaried personnel are now in operation.

Jewish institutions for child care were among the first to adopt the small home or cottage system. Homes for Jewish aged and chronically ill exist in 32 cities.

The youth service activities of the Jewish community grew out of the concern felt for young immigrants with no social opportunities. Jewish community centers, operating under the Jewish Welfare Board, have brought the various efforts of the Young Men's and Young Women's Hebrew Associations and other youth organizations into an active and coordinated program of recreation and education, with special emphasis on the needs of Jewish youth.

Characteristic of Jewish social work is its fostering care for Jewish immigrants, its National Desertion Bureau for the apprehension and punishment of Jews who abandon their family responsibilities, its loan societies and credit associations, and its early adoption of the principle of financial federation for the support of its charitable and social work. There is one separate training school for Jewish social workers, a Jewish Bureau for Social Research, and a National Conference of Jewish Social Work.

Protestant.—There is no unified program of social work among the several Protestant denominations. A certain amount of family service and relief goes on in connection with individual churches, conducted by the pastor and his assistants who may or may not be trained social workers. The stronger denominations possess a system of orphanages, hospitals, and old people's homes. The Protestant Episcopal Church supports one agency with local branches for the treatment of girls in moral danger—the Church Mission of Help—whose services are available to all Protestant young women. In general, the Protestant denominations, with perhaps the exception of the Lutheran synods, look to the non-sectarian agencies for their general social work, and throw their financial and moral support strongly behind these agencies.

Religious organizations with an evangelistic purpose, of which the Salvation Army and the Volunteers of America are the most prominent, give considerable service and relief to homeless and derelict denizens of our larger cities.

The outstanding contribution of the Protestant community to social work is in its youth service. The Young Men's Christian Association, with 677 city associations, 134 associations for railroad employees, 50 for colored young men, 29 army and navy associations, 202 in colleges and universities, and 68 town and country associations, presents a far-flung program for the protection, education and development of young men in body and character. The Young Women's Christian Association possesses 430 associations in towns and cities and 590 in colleges and universities, 63 branches are maintained for Negro girls and 60 for American Indians. It conducts a system of International Institutes for foreign-born women and girls, has a department for industrial studies of working conditions among women, and furnishes a free employment service in addition to its cultural, educational and recreational facilities.

MISCELLANEOUS SPECIALIZED ACTIVITIES

Work with Racial and Nationality Groups.—Work for various immigrant groups is chiefly found in the larger centers of population. At Ellis Island and other main ports of entry, religious and racial associations maintain representatives to advise immigrants and champion their interests. Members of foreign race groups are associated in many formal and informal associations to extend relief to needy fellow-countrymen. The International Migration Service, a privately supported non-sectarian organization founded in the United States but with branches in all the principal countries of the world, facilitates the progress in transit of families from one country to another, seeks to reunite separated families, makes studies and tries to secure legislative changes in the direction of less burdening restrictions on international migration. Social work for Negroes is promoted by the "Urban League" (National League for the Improvement of Urban Conditions Among Negroes) which has branches in 44 cities.

Travellers' Aid.—The difficulties experienced by inexperienced travellers have led to the formation of private social agencies whose work is to assist in these problems. Representatives at railroad, 'bus and steamship terminals are available for consultation, and extend especial protection to children and young girls travelling alone, and to women travellers. Temporary shelter is provided where necessary, and plans made to see the traveller to a safe destination. The transportation companies, realizing the value to them of this service, assume a large share of the support of these organizations, although their control rests with their boards of managers. The National Travelers' Aid Society reports that it has member agencies in 101 communities, with full-time work of the same character carried on by other agencies in 32 additional communities.

Legal Aid.—Free legal services for those unable to pay for them are extended with the full cooperation of the legal profession by some 80 legal aid bureaus, members of the National Organization of Legal Aid Associations. With a few exceptions these bureaus do not handle criminal or divorce proceedings, and their services are in the main the adjustment of debtor - creditor, employer - employee and landlord - tenant controversies. Court appearances are made when necessary on the client's behalf. Some bureaus have social workers as well as lawyers on their staffs, and all have a social as well as a legal approach to their task. They are generally supported by private funds, and are members of Chests and Councils of Social Agencies.

Aid to Veterans.—The American Red Cross, through its more than 3000 chapters, and in cooperation with the U. S. Veterans' Administration, advises and helps ex-service men to prepare claims for compensation and gives interim relief as needed. Medical social service is conducted by the Red Cross in the hospitals of the Army, Navy and U. S. Public Health Service. Organizations of ex-service men, such as the American Legion, provide relief for their former comrades and families, particularly for their orphaned and dependent children.

Disaster Relief. — The American Red Cross is charged with semi-governmental responsibilities and powers to raise funds and extend aid in time of wide-spread disaster. During the past fifty years, it has been active in over 1100 disasters due to storm, flood, fire, explosions, wrecks, and epidemics. Its expenditures for domestic disaster relief during this period have been upwards of $65,000,000.

Promotion of Social Legislation.—Several national organizations exist whose sole purpose is to study the need for various types of social legislation and to promote its passage. Among these may be mentioned the American Association for Labor Legislation, the National Child Labor Committee, the Remedial Loans Department of the Russell Sage Foundation, and the Association to advance Old Age Security.

TRAINING AND PERSONNEL STANDARDS IN SOCIAL WORK

The marked expansion of demand for social workers in the public service has laid great burdens on the shoulders of the privately supported training schools and associated social agencies. Training courses and institutes for social workers are being rapidly organized. The schools which at present meet the requirements of the Association of Training Schools for Social Work now number 27.

National associations representing the entire field of social work are: (a) The National Conference of Social Work, which holds an annual conference in the United States or Canada, attended by four to five thousand delegates, where problems and developments in all fields are discussed. Nearly all states have a similar annual conference for the discussion of more localized subjects. (b) The National Social Work Council, which is a federation of national social work organizations in various fields for the discussion of their common problems and for joint planning. (c) Community Chests and Councils, Incorporated, which is the national association of the local Councils of Social Work.

The profession of social work is represented chiefly by the American Association of Social Workers with

68 chapters and 8578 members. It promotes standards of training, studies personnel practices, and offers a channel for the expression of the opinions of professional social workers rather than of social agencies. Separate professional organizations also exist of hospital social workers, psychiatric social workers, and visiting teachers. Recently some organization has taken place among young social workers, with a more radical and labor-union slant than the older professional organizations have adopted.

The reader desirous of more detailed discussion of any of the aspects of private social work here presented, is referred to the *Social Work Year Book,* published by the Russell Sage Foundation.

PUBLIC SOCIAL WORK

By Russell H. Kurtz

Russell Sage Foundation

THE FEDERAL GOVERNMENT IN RELIEF WORK

Significance of Policy Change.—The entry of the Federal Government into the field of unemployment relief has immeasurably advanced the cause and development of public social work. Prior to the ruling of the Federal Emergency Relief Administration in the summer of 1933 that only public agencies might dispense Federal relief funds, much of the administration of relief in the various communities of America was entrusted to non-governmental groups (*see* Private Social Work, p. 564) although since 1929 the relief funds themselves had come in increasing measure from the public treasuries of these communities. The FERA ruling ended this arrangement and put government—Federal, state and local—squarely into the ''relief business.'' The effect of this change in policy has been the strengthening of the whole cause of public welfare administration.

Inadequacy of State Administration.—Before the current depression, public welfare was the ''poor relation'' in the governmental family. The Federal Government had consistently avoided the acceptance of any responsibility for the development of a national welfare program, except as the U. S. Children's Bureau had espoused the interests of children (in a program that was chiefly educational) and had undertaken to collect social statistics from a representative group of communities. The various states had established state welfare departments, from force of necessity, to administer certain inescapable functions which could not be discharged by the communities. These included the administration of state institutions for the insane, the feebleminded and epileptics; management of the reformatories and prisons and participation in the work of probation and parole; supervision of community child welfare activities through inspection of orphanages and licensing of boarding homes, and participation in the care of special groups, such as the aged, the blind, dependent mothers, veterans, etc. There was the widest variation in the adequacy with which these functions were accepted and discharged, and too frequently the state departments were weakly staffed and politically hamstrung.

Local Limitations.—In the local subdivisions of the states, public social work was, as a general rule, even less uniformly developed. In the towns, townships and counties, untrained ''poor commissioners'' dispensed meager outdoor relief to the town poor in those cases where the need seemed temporary and incomplete, referring to the almshouse or county farm the older and more infirm dependent members of society. In the cities the same pattern prevailed, except that occasionally a progressive element in the citizenry had succeeded in bringing about a socialization of the community's efforts, resulting in the creation of a fairly adequate department of public welfare. Many important cities, however, preferred to allow their Community Chest agencies to carry the big end of the welfare burden, convinced that this was the safest and cheapest course, and in these places, public welfare organizations were little more than catch-alls, dealing chiefly with institutional aid.

Mothers' Aid.—A notable exception to the above disorganization in the local public welfare field was found in the rather uniform provisions made by the communities, with the aid of the states, for the care of mothers with dependent children. Mothers' Aid has come to be an accepted instrumentality for safeguarding the interests of a substantial group of dependents whose needs, while not necessarily permanent, are continuous over a calculable period and are such that institutional care is inappropriate. The relatively bright history of Mothers' Aid since its beginnings in 1911 has led to recent extensions of the ''pension'' principle to other special categories, such as the aged and the blind. State participation has been an essential element in these programs.

Stimulus of FERA.—Since the establishment of the Federal Emergency Relief Administration in May 1933, relief and welfare have been continuously in the spotlight of public attention. Springing directly from unemployment relief interest, there has been growing in the American mind a consciousness of the need for a continuing national program of public welfare in which Federal, state and local governments shall join forces for the advancement of the common weal. This consciousness was crystalized by President Roosevelt in June, 1934, when he addressed a message to Congress outlining his hope that before the next Congressional session he would have succeeded in formulating a program of ''economic security'' which Congress would be willing to implement through legislation. Indicating that unemployment and health insurance, old age pensions, and continuing public works were to be central themes of this program, he named a Commission on Economic Security to explore the whole field of regularized relief and public welfare, charging it with the duty of assembling comprehensive data upon which a national plan might be based. Social workers see in this development an opportunity for clearing away much of the deadwood of obsolete poor laws, constitutional prohibition and indifference which has impeded public welfare progress in the past. It is their hope that a national plan will emerge in which a Federal Department of Social Welfare will be created to coordinate state and local programs, set standards, and assist in meeting welfare costs through grants in aid. They submit that under such a plan, the traditional American principle of primary local responsibility for relief and welfare would be preserved, though strengthened by Federal and state participation; and that private philanthropy would continue to find many opportunities for service in meeting specialized needs.

UNEMPLOYMENT RELIEF

Federal and State Coordination.—The relief of need arising from unemployment was entirely a local obligation in the early years of the depression, and it was not until the passage of the first Emergency Relief Act in 1932 that the Federal Government through a system of loans undertook to lighten this back-breaking load. The second Relief Act of 1933 made provision for grants in aid to the states. During 1933 and 1934 the Federal Emergency Relief Administration, seeking to develop a cooperative relationship with the states, found itself forced to assume such a dominant rôle in relief administration that many localities began to feel that they were being completely relieved of their responsibilities. As recently as September, 1934, however, the President reminded the nation that Federal aid was only a temporary and supplementary device to assist the states and communities through a difficult period. At the same time the Federal relief administrator renewed his efforts to throw back upon the states a greater part of the total cost of relief, and began to relinquish to them more authority for self-determination as to policy and content of their local programs. Thus, as 1934 drew to a close, balance was being restored between Federal and state responsibility, with the ultimate statutory obligation still resting upon the shoulders of the local communities in the traditional American manner.

Expenditures.—In the 18 months from January, 1933, through June, 1934, the combined local, state and Federal expenditures for unemployment relief in the United States States amounted to $1,340,000,000 of which the Federal Government provided 62.8 per cent, the state governments 16 per cent, and the smaller political subdivisions 21.2 per cent. This was exclusive of Civil Works Administration expenditures, which amounted to approximately $950,000,000 more. In the latter half of 1934 the combined expenditures from public relief funds were approximating $150,000,000 per month, with 4,000,000 families receiving assistance.

Administrative Development.—Under the leadership of the FERA, the national program for alleviating unemployment distress has gone through three major phases by the fall of 1934. The first period, from the organization of the FERA in May, 1933, to the launching of the Civil Works program in November, 1933, was one of administrative development and elevation of relief standards. Many communities had been backward in their provisions for the care of the unemployed and the FERA promptly and aggressively undertook, during these months, to bring them into line. Grants of Federal funds were made contingent upon good administration and adequate relief within the states. A marked advance in the adequacy of relief and in uniformity of practice was made during this period.

PWA Plan. — The second phase, from November, 1933 to April, 1934, was one of ''relief from relief'' through the operations of the short-lived Civil Works Administration. Administration officials, disappointed by the failure of public works to give widespread employment and appalled by the increase in relief applications, conceived the idea of using $450,000,000 of PWA funds, supplemented by FERA, state and local monies, for the emergency employment of 4,000,000 persons during the winter months. The plan was hastily adopted and put into effect, electrifying the nation with its boldness of conception and execution. Within a few weeks after the decision was reached to go ahead, the program was in full swing. Two million of its beneficiaries were drawn from the relief rolls, 2,000,000 from the registered unemployed not on relief. ''Real work at real wages'' was the slogan and to a remarkable extent this aim was achieved. Many worthwhile projects were undertaken and completed. But the system proved too cumbersome and expensive to be long continued and, with the coming of spring it was abandoned.

Relief Reorganization.—The third period has been one of reorganization. Since April 1934 the relief motif has again been dominant with, however, a new emphasis on rehabilitation. The present program is based on a recognition of the probable continuance of unemployment, in substantial measure, for a long time to come. To those of the unemployed who are trapped in the cities, relief is offered with opportunity to make repayment in labor on work-relief projects of a public or communal nature. To the rural or semi-rural recipients of aid, however, a more constructive plan is available. This involves a return to the land on a subsistence basis with supplementary opportunities to earn small cash incomes from public works or in such ''decentralized'' private industries as can be induced to operate plants nearby. In the deep south, this plan envisages the release of the tenant share-croppers from the semi-feudal state in which they have been living for two generations, and everywhere it offers a degree of independence from relief through operation of the principles of self-help and pioneer enterprise. For those who are inhabitants of "stranded communities" or farmers on sub-marginal land, transfers to new environments are contemplated, with the relief administration leading the way and advancing the money. To those who prefer village life to that of the open country, a modern form of cooperative living is offered in newly organized "rural communities."

Cash Basis for Relief Grants. — Both urban and rural relief has fallen short of meeting fundamental family needs in all but a few places. Food and fuel are usually given in fairly adequate quantities, but clothing and household supplies have gone unreplenished in many families, while provision for shelter has been made all too infrequently. Medical care is authorized but hospitalization is not. Where the beneficiary earns his support through work relief, cash wages are usually paid. Recently a few progressive states have put their home relief grants, as well as their work-relief wages, on a cash basis, regulating the amount by the ascertained "budgetary deficiency" within each family. Commissaries have practically disappeared from the scene and relief by retail order is the standard procedure in most localities. Some commodities are still distributed "in kind," but these are largely items from surplus stocks accumulated by the Government in its agricultural-control operations and are supplemental to regular relief grants.

Specialized Activities.—A number of specialized activities have been developed to meet the needs of specific groups. Homeless and unattached persons with established legal residence have traditionally been cared for in mass shelters or private rooms, according to the social vision prevailing in the various communities. Transients and "non-resident homeless," however, were quite generally neglected and passed from city to city until the FERA made special provision for their care, in late 1933, through grants of funds earmarked for that purpose. A chain of several hundred shelters and camps have been set up throughout the nation in which homeless persons may now seek refuge from the hazards of the road and may rehabilitate themselves through work, good physical care, recreation and vocational adjustment.

"White Collar" Work. — Many work projects have been devised for "white-collar" workers on relief. Chief of these have been in the educational field where rural schools have been kept open and adult education has been promoted through the use on a work-relief basis of unemployed professional persons as teachers. Student aid, planned to keep young people in high school and college, has also been extended in the guise of work relief. Many special work projects have been set up for unemployed women breadwinners.

CCC Camps. — While not a part of the FERA program, the Emergency Conservation Service has done its bit for the relief of unemployment through its operation of Civilian Conservation Corps camps in which nearly 1,000,000 young men have received good physical care, discipline, and a chance to help support the relief homes from which they have been drawn.

SOCIALISM

By Nathan Fine

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DETROIT CONVENTION

Militants vs. Old Guard.—In the last five years there developed within the Socialist Party a struggle for power between two main groups, the Thomasites and the Militants, on the one hand, and the Old Guard, on the other. At the Milwaukee convention in 1932, the fight occurred over the election of Morris Hillquit as national chairman. He was the outstanding spokesman for the Old Guard. Norman Thomas, Mayor Daniel W. Hoan of Milwaukee and Paul Blanshard, the Thomasites, and the left-wing Militants proper, led the attack. At the recent national convention of the party, held in Detroit, June 1-3, 1934, the Thomasites and Militants and Revolutionary Policy Committee united on a left wing program, secured its adoption as the Declaration of Principles, and won control of the National Executive Committee, thus defeating the Old Guard decisively.

Louis Waldman, Charles Solomon, Algernon Lee, James Oneal, Julius Gerber, and others from outside New York State, constituting the Old Guard, were fighting for the traditional social democratic party as exemplified by the existing British Labor Party program. The Thomasites and Militants, with differences among them due to background and experience, were struggling for a left wing Socialist program, while the Revolutionary Policy Committee was expressing a Communistic tendency within the Socialist Party. Organizationally, these three groups united to defeat the Old Guard. After the Detroit convention, however, the Revolutionary Policy Committee took the Militants sharply to task for their alleged centrism, while the National Executive Committee voted to investigate this Committee, with the probabilities that the R. P. C. will be either outlawed or some of its members expelled. By the end of 1934 there was no split inside the Socialist Party. There was merely a continuation of the pre-war battle between the Revolutionists and the Reformists, with the Centrists now taking one side, now the other. This has been normal in the history of all Socialist parties of the world.

Acts of the Convention.—The triple alliance was not united throughout the convention. It was divided on two propositions of the Resolutions Committee. The latter proposed that the revolutionary position of the majority of the American delegates to the special international Socialist conference, held in Paris during the summer of 1933, be endorsed, and that it become the basis of the policy and tactics of the American party. The Old Guard spokesmen vehemently attacked the resolution. Mayor Daniel W. Hoan joined them, and Norman Thomas amended to strike out the suggestion that the American party follow slavishly the ideas enunciated. On a roll-call, where each delegate voted in proportion to the paid-up membership represented by him, the motion of the Resolutions Committee was defeated. On still another vital matter were the out-and-out revolutionary Militants given a set back. The Resolutions Committee, in its statement on the NRA and Socialism, condemned the obselete ideology and reactionary leadership of the American Federation of Labor. By a vote of 76 to 59, this paragraph was stricken out of the resolution. The left wingers had their innings, however, in the election of the chairmen of the day, in the selection of the members of the various committees on organization, constitution, platform, and resolutions, and above all, in the election of the members of the National Executive Committee, and the adoption of the famous Declaration of Principles.

The national chairman, Leo Krzycki, was elected without opposition. In addition, the following ten were chosen to serve on the national executive: Daniel W. Hoan (Wisconsin), James D. Graham (Montana), Norman Thomas (New York), M. Shadid (Oklahoma) — subsequently resigned, because of a telegram of congratulations which he sent to Upton Sinclair when he was nominated for governor on the Democratic ticket—replaced by Devere Allen (Connecticut), Darlington Hoopes (Pennsylvania), Powers Hapgood (Indiana), Maynard Krueger (Illinois), James Oneal (New York), Franz Daniel (Pennsylvania), and Albert Sprague Coolidge (Massachusetts).

Declaration of Principles. — All sides were in agreement on most of the paragraphs contained in the Declaration of Principles. But the

Old Guard would not accept and has not accepted the following provisions: "They (the Socialists) will loyally support, in the tragic event of war, any of their comrades who for anti-war activities or refusal to perform war service come into conflict with public opinion or the law. . . . They (the Socialists) will meet war and the detailed plans for war already mapped out by the war-making arms of the government by massed war resistance. . . . It (the Socialist Party) unhesitatingly applies itself to the task of replacing the bogus democracy of capitalist parliamentarism by a genuine workers' democracy. . . . If the capitalist system should collapse in a general chaos and confusion, which cannot permit of orderly procedure, the Socialist Party, whether or not in such case it is a majority, will not shrink from the responsibility of organizing and maintaining a government under the workers' rule."

Immediately after the convention was over the Old Guard organized a Committee for the Preservation of Socialist Policies Within the Socialist Party and sent out numerous pamphlets, as well as a special newspaper, to help defeat the Declaration of Principles which was being voted on by the members in a national referendum. The Socialist press was filled with their attacks. The triple alliance was not backward in meeting them and defending the Declaration. For months the debate was conducted inside the branches and locals. Finally, the vote was announced. At the Detroit convention the vote in favor of the Declaration of Principles was 10,822 as against 6,512 opposed. The referendum returns were much more favorable to the Old Guard.

Over half of the membership had not participated in the referendum. But of those who did vote, 10,865 (44.8%) were opposed to the Declaration of Principles. Meanwhile, the New York State convention had expressed its strong dissent and had just barely nominated Norman Thomas for United States Senator; other state conventions had widened the breach between the factions; in New York City the fight between the Militants and the Old Guard was growing very acute, despite the necessities of the election. The National Executive Committee was to meet in Boston, Nov. 30-Dec. 2, and special committees from about ten states were planning to appear before it, to push their points of view and propositions.

State	For	Against
Alabama	4	0
Arizona	31	12
Arkansas	85	4
California	109	114
Connecticut	164	189
Delaware	16	1
District of Columbia	17	26
Florida	24	10
Georgia	4	3
Idaho	8	2
Illinois	454	181
Indiana	106	221
Iowa	37	9
Kansas	145	13
Kentucky	26	2
Louisiana	21	4
Maine	38	28
Maryland	52	130
Massachusetts	257	450
Michigan	316	130
Minnesota	41	29
Missouri	224	40
Montana	2	38
Nevada	1	3
New Hampshire	23	28
New Jersey	330	251
New Mexico	34	8
New York	1,189	1,537
North Carolina	33	1
Ohio	228	255
Oklahoma	69	7
Oregon	10	66
Pennsylvania	546	771
Rhode Island	23	34
South Carolina	3	0
Tennessee	37	7
Texas	41	30
Utah	10	3
Vermont	23	26
Virginia	27	16
Washington	39	11
West Virginia	62	2
Wisconsin	1,032	169
National Members at Large	15	4
Totals	5,993	4,872

DECISIONS OF THE N. E. C.

The Communists were carrying on a vigorous propaganda for a united front with the Socialists. This was dividing the latter as much as the Detroit Declaration. The National Executive Committee of the Socialist Party, at its Boston meeting, therefore, decided that the next party convention (1936) should pass on this question of a united front with the Communists; that meanwhile the state parties were to be free to take such action as they wished. The executive voted to investigate the Oklahoma movement, as a result of the charges of James Oneal, editor of the *New Leader*, also the Revolutionary Policy Committee and its Communistic tendencies, and it appointed a special committee to make a survey of the development of independent political action by the farmers and workers. It designated another committee to receive suggestions for restating the Declaration of Principles. The actions of the National Executive Committee did not restore harmony in the sense of satisfying the Old Guard or abolishing the factions in the party.

ELECTION RESULTS

Bridgeport.—This industrial city of Connecticut was again the bright spot in the November, 1934, poll for the Socialists. Jasper McLevy, elected mayor in 1933, was the candidate for governor, and the vote in his home town was 16,970 against 12,299 for the Democrat and 10,937 for the Republican. He helped to elect—for the first time in the history of the state—three state Senators and two state Representatives, as well as a number of local officials. Mayor McLevy received an all-time high vote in the state election, and is planning to carry Connecticut next time.

Reading.—Lilith Wilson and Darlington Hoopes were re-elected to the lower house of the state legislature for a third two-year term in Reading, Pa., despite fusion of the old parties. James H. Maurer, candidate for United States Senator, and Jesse H. Holmes, candidate for governor, carried the city. The results clearly show an endorsement of the vigorous legislative activities of the Socialist representatives.

New York State.—Norman Thomas, candidate for United States Senator, headed the poll in the Empire State, 194,952, while Charles Solomon, candidate for governor, received 126,580 votes, of which 79,522 were secured in New York City. In 1932, Thomas obtained 177,397 in the State, and Louis Waldman (candidate for governor) 102,959, when a much larger vote was cast. The returns in New York State were as good, if not better, than any other state, excepting Connecticut.

Results in Other States.—Wisconsin re-elected its three Assemblymen but lost it's State Senator. California suffered severely because of Upton Sinclair's candidacy. Ohio, Illinois, New Jersey and Massachusetts, among the larger industrial states, also showed heavy losses.

PARTY MEMBERSHIP AND ACTIVITIES

Membership. — For the first ten months of 1934, the average membership of the Socialist Party, according to the report of Clarence Senior, secretary, was 22,074. This is a gain of nearly 5,000 over 1933. The actual membership of the party since 1903 was as follows:

Year	Membership
1903	15,975
1904	20,763
1905	23,327
1906	26,784
1907	29,270
1908	41,751
1909	41,479
1910	58,011
1911	84,716
1912	118,045
1913	95,957
1914	93,579
1915	79,374
1916	83,284
1917	80,379
1918	82,344
1919	104,822
1920	26,766
1921	13,484
1922	11,019
1923	10,662
1924	10,125
1925	8,558
1926	8,392
1927	7,425
1928	7,793
1929	9,560
1930	9,736
1931	10,389
1932	16,863
1933	18,548

By the end of November, 1934, there were 1,473 local organizations affiliated to the party in 45 states and the District of Columbia. This compares with 1,213 in 1933, and 1,125 in 1932.

Press and Literature. — The past year saw the appearance of *Socialist*

Action, a monthly issued by the national office for the members, and *Arise,* the official monthly organ of Rebel Arts, the cultural and artistic group in the movement. Numerous pamphlets were issued by the party and its auxiliaries, the Rand School of Social Science and the League for Industrial Democracy. Paul Porter's *Commonwealth Plan,* and Norman Thomas' *The New Deal* were among those most widely distributed.

Fight against Fascism.—Following the news of the February, 1934 events in Austria, the American Socialists raised thousands of dollars for their European comrades, called meetings—the largest of these in New York City was broken up by the Communist Party—and sent Max Winter and Julius Deutsch on tour through the land. In addition, the Socialists welcomed and arranged meetings for Gerhart Seger and Toni Sender, German exiles, as well as G. E. Modigliani of Italy and Walter Citrine of Great Britain. B. C. Vladeck, manager of the *Jewish Daily Forward,* is secretary, and William Green, president of the American Federation of Labor, is chairman of the Chest for the Liberation of the Workers of Europe. The Chest is fighting Fascism in this country, aiding anti-Fascist work in Fascist countries, and is assisting in relief projects. The Socialist Party is not affiliated with the League Against War and Fascism, which it regards as inspired and led by the Communist Party. Both Mr. Vladeck and Mr. Citrine addressed the San Francisco convention of the A. F. of L.

Labor Connections.—Paul Porter was appointed national labor secretary and officially began his duties, Oct. 27, 1934. Prior thereto he had been active in the national textile strike, as had been most of the officials and rank and file of the party. In New York City the Young People's Socialist League conducted the local strike itself. In every important labor struggle during the year the Socialists played a greater or lesser rôle, dependent upon their numbers and influence. The party continued active connections with the sympathetic unemployment leagues.

Young People.—The Young People's Socialist League (Winston Dancis, secretary, and Arthur G. McDowell, chairman) reports about 3,000 members in 185 circles in 24 states. It has a monthly paper, the *Challenge,* with a circulation of about 10,000, the largest for any radical youth periodical in the country. It has plays, outlines, and a theoretical magazine, all mimeographed. The Y. P. S. L. is active in the Student League for Industrial Democracy, as well as among the high school students, and took part in the first student strike on April 13 as a protest against war. It cooperates closely with the Socialist Party on the economic and political fields, doing the Jimmy Higgins work.

HOUSING PROGRESS

By James A. Moffett

Federal Housing Administrator

DEVELOPMENT OF NATIONAL CONCERN IN HOUSING

Housing is now recognized as a matter of national concern. Full recognition came in 1934, with the passage of the National Housing Act and the establishment of the Federal Housing Administration. Partial recognition was manifest as early as 1932, in the establishment of the Federal Home Loan Bank system, and in 1933, that system was improved and extended. Likewise in 1933 there were established a number of Federal agencies to extend relief and emergency credit for home financing, together with certain others which finance or execute housing projects directly. But, in 1934, the need was apparent for Federal legislation of even broader scope than that which had created the Federal Home Loan Bank system, if the business of providing adequate shelter for the American people was to remain primarily a matter of private enterprise and individual initiative. Hence the National Housing Act, became law when approved by President Roosevelt on June 27, 1934.

FEDERAL HOUSING AGENCIES

There is no attempt in this brief article to give more than passing mention to the principal agencies of the Government, other than the Federal Housing Administration, which are concerned directly or indirectly with housing. The House Owners' Loan Corporation, administered by the Federal Home Loan Bank Board, is an agency for the relief of urban home owners who are in danger of losing their property through the foreclosure of mortgages. The Housing Division and the Housing Corporation of the Public Works Administration are engaged both in direct construction or reconstruction of low-cost housing and slum clearance projects and in making grants and extending loans to states and municipalities and other public bodies for the financing of such projects. The Subsistence Homesteads Corporation of the Department of the Interior is engaged in building and financing homesteads on which families can supplement their income from part-time industrial employment by producing much or nearly all of their food. Somewhat similar functions are being performed by the Federal Emergency Relief Administration, although special emphasis in this case is placed on relief in the way of rural rehabilitation, the establishment of rural industrial communities, and the reconditioning by unemployed building trades workers of homes occupied by tenants receiving relief. How much of the Government's activity along these various lines is to become permanent or how far it is to be extended, is likely to depend very largely upon how promptly and how completely private capital and enterprise demonstrate their ability to meet the housing needs of the people.

The principal permanent agencies of the Government concerned with urban housing at the present time are the Federal Home Loan Bank Board and the Federal Housing Administration. Both are designed to facilitate and coordinate the use of private capital in the activities connected with the construction, the ownership, and the maintenance of the great bulk of all the dwellings in the country.

FUNCTIONS OF THE FEDERAL HOME LOAN BANKS

The Federal Home Loan Bank Board is the governing body of a national home-financing reserve system made up of building and loan associations, savings banks, and insurance companies. Twelve Federal Home Loan Banks, under the supervision of the Board, are empowered to make short- and long-term loans to members of the system, for the main purpose of increasing the funds for home financing, of encouraging long-term amortized loans, and of giving liquidity to home mortgages and home financing institutions. Each Federal Home Loan Bank may issue bonds or debentures for sale to the public to increase its resources. The system at this time (beginning of 1935) is only a little over two years old, and it has already become the central coordinating agency for the great body of mutual home financing institutions operating on the principal of cooperative thrift and saving.

FINANCIAL ASPECTS OF HOUSING

National Housing Act. — Passage of the National Housing Act in 1934, was in response to a long felt need for legislation of a character which would permit and foster the development of a nation-wide home mortgage financing system, in contrast with the scattered and disordered facilities for the financing of home ownership available heretofore. As a practical matter, however, it was necessary as far as possible to make use of existing facilities, and the Act was so drawn as to facilitate coordination of the functioning of the various institutions already engaged in mortgage lending. It also makes provision for the creation of certain new agencies, which are necessary to round out the new system. To administer the Act, the Federal Housing Administration was established.

Federal Housing Administration.—While the primary responsibility of the Federal Housing Administration is to cope with the financial aspects of the housing problem, the realization remains that this is not the whole of the housing problem. Complex economic and social questions, involving community planning and indeed national planning, as well as questions involving architectural and engineering methods, constitute a vast field of inquiry and future development which must be considered as part of the problem as a whole. The Federal Housing Administration has certain broad powers under the law which will enable it to make its influence felt in the working out of these wider aspects of the problem, but the financial problem is of such fundamental importance that it must be effectively dealt with before much can be accomplished with respect to the other phases of housing. It is in full realization of this fact that the Federal Housing Administration has commenced operations.

Credit Facilities for Repair.—As envisaged in the Act, the financial problem, quite apart from the emergency being met by the Home Owners' Loan Corporation and other agencies of the Government, involves also an emergency phase. This is in the matter of credit facilities for the repair of buildings neglected during the depression which are owned by people of adequate income but without sufficient cash or commercial bank credit to undertake the work. Title I of the Act provides for a plan of credit insurance, through which property owners with adequate income are enabled at moderate cost to borrow from banks and other private lending agencies the sums necessary to carry out delayed repairs and improvements, with the privilege of repaying the loans by small monthly installments. This part of the program of the Administration has been in operation since the middle of August, and the results already accomplished, both in credit and cash expenditures for the modernization and improvement of buildings, are sufficient to show the immense possibilities it holds out for a revival of activity in the construction industry and in the related durable goods industries.

Mortgage Financing System. — Titles II and III of the Act provide the legal basis for the coordinated home mortgage financing system already referred to. Provision is made in Title II for the mutual insurance of home mortgages conforming to certain standardized terms and conditions. Chief among these are the following: the mortgage must be a first lien on a dwelling house containing living quarters for not more than four families, and in an amount up to $16,000, but not to exceed 80% of the appraised value of the property. It must be fully amortized by providing for regular periodic payments on principal, well within the means of the mortgagor, whereby it will be completely paid off by maturity, and it may run for as long as 20 years. Appraised value will be determined by the Federal Housing Administration on the basis of standardized rules which will involve the broadest possible social and economic considerations, as well as the most careful adjudication of the real worth of the property throughout the life of the mortgage.

Insurance Premiums. — Interest rates will be limited and insurance premiums will be fixed by the Federal Housing Administration, as provided by law. Regulations governing these matters have already been promulgated. They will not be dealt with in this article; but it should be remarked in passing that, on the basis of actuarial calculations, the insurance premiums charged will be more than sufficient to cover all losses likely to be incurred, even though all insured mortgages were in amounts up to the full maximum of 80% of appraised value.

TERMS AND CONDITIONS OF INSURED MORTGAGES

Nation-wide Home Mortgage Markets.—Here the important thing to remember is that the terms and conditions of the insured mortgages are standardized. This means that from the standpoint of the investor one insured mortgage will be about as good as another, no matter where the mortgaged property is located. The basic conditions will thus be established for a nation-wide market for such mortgages. Lenders or investors will no longer be obliged to consider only such mortgages as can be obtained locally.

But for the full realization in practice of a nation-wide market, certain additional machinery is needed. Consequently, provision is made in Title III of the Act for the establishment of national mortgage associations, whose business it will be to buy insured mortgages from those who wish to sell them. These will be large institutions, each with a minimum paid-up capital of $5,000,000. They will obtain the funds for purchasing insured mortgages by the sale of their own debentures, issued against the security of equivalent amounts of insured mortgages. Each association will be empowered thus to issue debentures in amounts up to ten times its paid-up capital stock so that the smallest one will be in a position to buy at least $50,000,000 worth of insured mortgages.

It should be clear from the foregoing, that if the insured home mortgage becomes the standard practice, the establishment of a sufficient number of national mortgage associations will complete the development of a coordinated system, the principal feature of which will be a nation-wide home mortgage market.

Advantages.—For the home owner, this should mean the end of the short-term mortgage, with all the expense and uncertainty attendant upon its renewal. The borrower and the lender will both know in advance exactly what to expect until by regular periodic payments the mortgage is completely liquidated. The new system should also mean relief from the exorbitant cost of second mortgages; for, with the privilege of obtaining up to 80% of the appraised value of the property on an insured first mortgage, the prospective home-owner will be in a position to borrow as much of the purchase price as sound financial practice warrants, without resort to secondary financing.

The home owner, particularly if located in an area where long-term credit is usually scarce and costly, should also derive a substantial advantage from the equalization of interest rates everywhere and the greater supply of mortgage money which will be available in such areas, as a result of the operation of the nation-wide market.

Finally, an advantage of great value to the prospective home-owner will be derived from the appraisal upon which his insured mortgage is based. Although himself inexperienced in judging real estate value, he will know that the appraisal made by the Federal Housing Administration represents a valuation arrived at by the impartial exercise of the best available scientific judgment.

ADVANTAGES OF THE NEW MORTGAGE SYSTEM

National Mortgage Associations.—Great as are the advantages of the new system to the owners and prospective owners of homes, they are equally important to the financial institutions and the investors who furnish the funds for home mortgage loans. Banks, as well as insurance companies, building and loan associations and other institutional lenders, will have not only the benefits of safety through the insurance of the mortgages, but the further advantage of liquidity in case of need. For the national mortgage associations may be expected to provide a cash market for insured mortgages at all times. The debentures of these associations will provide a high-grade security suitable for purchase by investors of all kinds, whether institutions or individuals. They will no doubt be listed on the principal securities exchanges of the country, thus enjoying a high degree of marketability, in addition to safety.

For the national economy as a whole, the advantages of the new system are so readily apparent as to require but little comment. Both socially and economically, the benefits to be derived from a better secured ownership of the nation's homes are of inestimable value.

Residential Construction.—The new system may be expected in the first place to make possible the rehabilitation of a large volume of the existing $21,000,000,000 of home mortgage indebtedness, and in the second place, to arrest the flight of capital from and attract fresh capital to that field of investment. When these results are attained, new residential construction will start. After reaching its normal volume, it may be expected to sustain its proper relative position in the economic activity of the country. This should follow from a more constant supply of funds to the construction industry and a more evenly distributed employment of labor and consumption of materials. The peaks and valleys of housing production should be leveled, and the residential building booms and subsequent collapses of past experience should be greatly mitigated, if not in fact, prevented.

Program. — The program of the Federal Housing Administration designed to build up this new system may be looked upon either as a way out of the depression or as a means of improving the housing standards of the American people. In reality it is both. As a way out of the depression, it should go far to revive the durable goods industries, thus providing employment for millions out of work. And yet, the primary purpose of the whole undertaking is the improvement of housing standards, with the principal emphasis on home ownership. It is designed not only to improve the comfort and convenience and appearance of the houses the people live in, but also, and above all, to make the actual ownership of homes more widespread, more secure, and more easy of accomplishment.

SOCIAL HYGIENE

By Mary S. Edwards

American Social Hygiene Association

FEDERAL EMERGENCY RELIEF PROGRAM

Application of Rules.—In 1934 interest continued to be centered upon the Federal Government's entrance into the social welfare field, its influence on present programs and its significance in the future development of social work. At a number of points in the application of the Government's program, state and community social hygiene activities are affected. The issuance of the famous Rules and Regulations No. 7 by the Federal Emergency Relief Administration (permitting payment from relief funds to doctors treating persons on relief rôles in their homes, or as ambulatory patients in the doctors' offices; and payment to nurses for bedside care) has meant that treatment for syphilis and gonorrheal infection was made available to those infected among the millions of persons on Federal relief funds. In many states broad treatment programs on this basis are under way, varying widely in the several states. In other states the attitude of some relief administrators through prejudices, misunderstanding or shortage of funds, is still a block to the carrying out of the intent of the published rules and regulations.

Nursing.—Some 8,000 nurses have been employed from Emergency Relief Administration funds, bringing public health nursing in some states into areas where such service has not been known before. With the invaluable opportunity of the public health nurse to find cases and contacts, here is a further means of getting infected persons in the community under diagnosis and treatment.

Wassermann Survey. — Among other health projects developed under the Federal Emergency Relief Administration may be mentioned the Wassermann survey of more than 2,000 unselected individuals in several counties in the State of New Mexico. A further effort of the Federal Government which vitally concerns the prevention of the spread of the venereal diseases has been directed toward suitable examination of all transients and treatment if infected. In some states this has meant a routine Wassermann of all transients registered. Particular attention has been paid to the pregnant woman and girl for the prevention of congenital syphilis.

Medical Program of C. C. C.—The medical program of the Civilian Conservation Corps was this year enlarged by an Army order to include treatment of venereally diseased young men within a government or other hospital until rendered non-infectious, before transfer to their homes. In many of the camps the educational program has included health training with lectures on the seriousness of the venereal diseases, their sources and avoidance, and the necessity of prompt medical treatment.

T. V. A. and Norris Dam.—Another government project which has emphasized social hygiene problems is the Tennessee Valley Authority. A model health program with the cooperation of the United States Public Health Service is under way in the Norris Dam area. A description of its objectives specifies "control of the venereal diseases through a familiar approach, including prophylaxis, treatment and education of the employee and his family." Serological examination of large groups of these found 4.1 per cent to be infected.

Housing.—Studies of slum clearance in the large cities in connection with the Federal housing program have analyzed the relation between crime, including sexual delinquency and bad housing, prostitution and deteriorated city areas, and the spread of venereal diseases and inferior and over-crowded dwelling quarters. Social hygiene has a direct stake in these housing projects.

Environment Projects. — There is further concern in the expenditure of Civil Works Administration and Federal Emergency Relief Administration funds for crime prevention activities, recreation and educational plans for the unemployed, and in vocational guidance work. All such projects, by raising the morale of the individual through improving his immediate and community environment tend to strengthen and preserve the family unit which is a prime objective of social hygiene.

UNITED STATES PUBLIC HEALTH SERVICE

Division of Venereal Diseases. — Permanent government activities in fighting the venereal diseases are centered in the Division of Venereal Diseases of the United States Public Health Service, established by law to study the cause, treatment, and prevention of syphilis, gonorrhea, and chancroid; to cooperate with the state departments of health in the control of these diseases; and to prevent their spread through interstate travel. For the last fiscal year the net appropriation for the work of this Division amounted to $58,000. This was supplemented by grants from two philanthropic foundations for the completion of special pieces of work.

Clinical Studies.—For the past several years the Division has participated in studies of the clinical aspects of syphilis and the results of treatment. These studies were sponsored by the League of Nations Health Organization, and carried on in this country by the United States Public Health Service and a group of five of the leading syphilis clinics, with financial assistance from the Milbank Memorial Fund. Reports have been published from time to time in the monthly, *Venereal Disease Information.* An exhibit of 24 charts was prepared by the American Social Hygiene Association, with advice from the Public Health Service and the five cooperating clinics, to present graphically the important findings of these studies. This exhibit was shown at the annual meetings of the American Medical Association in Cleveland and of the National Medical Association in Nashville and is slated for further widespread use. Miniature reproductions of the exhibit are available.

Census Surveys.—The one-day censuses of cases under treatment and observation initiated by the American Social Hygiene Association and developed largely by the United States Public Health Service, have been continued with a survey in Miami and Dade County, Florida, and a statewide survey in New Mexico. The San Francisco survey was published this year. A resurvey to determine the trend of venereal diseases was completed in Cleveland. The rates per 1,000 population were found to be: cases of syphilis, 5.3 per 1,000, and gonorrhea, 2.8 per 1,000, showing a decrease in the number of cases under treatment from the figures shown by a similar survey several years ago. Preliminary reports from a study of syphilis among in-patient hospital beneficiaries of the United States Public Health Service marine hospitals show that 17 per cent of these patients are infected.

Preventive measures for venereal disease control were continued by the Service in cooperation with state and local health departments. This year 47 states reported to the Division, a total of 230,890 cases of syphilis, 153,255 cases of gonorrhea, and 1,808 cases of chancroid. These figures do not in any way represent a true picture of prevalence, since cases are inadequately reported. Even so, they are impressive when it is realized that every year reports of venereal diseases outnumber all other reportable diseases except possibly measles, or influenza in an epidemic year. State health departments distributed 1,279,690 doses of arsphenamine. The 616 cooperating clinics admitted 76,089 new cases of syphilis, 51,254 of gonorrhea, and 1,419 of chancroid; they discharged 55,710 cases as arrested or cured. During the preceding fiscal year only 572 clinics reported, but the total new cases of venereal diseases were about 20,000 less this year.

Control Activities.—Public Health Service officers were detailed to direct venereal disease control activities in two states, North Carolina and Tennessee. In North Carolina the cooperative clinician plan was put into practice. The State department of health appointed 33 physicians and furnished them with free drugs for the treatment of patients on active relief rolls, and others who in the judgment of the local relief officers were unable to pay for treatment. While only a few new clinics were established, there was increased effectiveness in the service rendered by many of the clinics operated by full-time county health departments. An exhibit arranged for the state fair in Raleigh was attended by approximately 11,000 persons. Talks to college and high school students, parent-teacher associations, civic clubs, and industrial groups reached 20,000 persons. Much radio and newspaper publicity was given. Addresses were made to 12 medical societies.

Hot Springs Clinic. — The only clinic maintained directly by the Public Health Service is the one at Hot Springs, Ark. The tremendous influx of transients into the city has greatly added to the volume of work in the clinic. Applicants for treatment numbered 6,692, and over two-thirds were infected with a venereal disease showing an increase of 25 per cent in this type of patient over the previous year. Their treatment has been made more effective because assistance from funds of the Transient Bureau allowed patients to remain for longer periods than heretofore.

Educational Work.—The Division carried on its educational work largely through *Venereal Disease Information,* a journal of abstracts primarily of interest to physicians and health officers, and the distribution of literature, exhibits and films. During the past year special efforts have been made to interest private physicians in reporting their cases by giving venereal disease morbidity and prevalence statistics greater publicity and by getting other pertinent information transmitted to physicians by health departments more efficiently.

AMERICAN NEISSERIAN MEDICAL SOCIETY

The formation of this society at the time of the American Medical Association Convention, July, 1934, in Cleveland, is of primary importance. The objectives are: the scrutiny of the management of gonorrhea in both male and female; clinical and laboratory research in the diagnosis, medical and social pathology, and the treatment of gonorrhea, with a view to the reduction of its prevalence, and the dissemination among the medical profession and the public of authoritative information concerning gonorrhea. The officers of the Society are: President, Dr. J. Dellinger Barney, Boston; Vice-President, Dr. P. S. Pelouze, Philadelphia; and Secretary-Treasurer, Dr. Oscar F. Cox, Jr., Boston. The charter members include a distinguished group of urologists, gynecologists, and laboratory workers.

CONGENITAL SYPHILIS CAMPAIGN

During the summer of 1934, the National Health Council group of agencies, the American Medical Association and other interested organizations approved a joint intensive campaign for the prevention of congenital syphilis. The essential purpose of this campaign is to focus more definitely the attention of the medical profession, the public health agencies and the general public upon the problem, with a view to promoting the wider use of the means of its solution, namely, the early medical examination of every pregnant woman, including a blood test for syphilis and the early and adequate treatment of those found to be infected. State and county medical societies, the United States Public Health Service, state and local health authorities, and social welfare and health agencies, both national and local have joined in this movement.

LEAGUE OF NATIONS ACTION

At the April, 1934 meeting of the League of Nations Permanent Advisory Commission for the Protection and Welfare of Children and Young Persons a long-considered recommendation was adopted and forwarded through the Council and Assembly of the League to all the governments to the effect that licensed houses of prostitution should everywhere be abolished. All previous studies of the League concerning traffic in women and children, in Europe, South America, and the Far East have demonstrated the close relationship between the licensed or tolerated house of prostitution and the traffic in women and girls. It has been proved many times that such houses afford no protection to public health or public order. The Advisory Commission was forced by the overwhelming preponderance of evidence to conclude that such houses are an unmitigated evil and should be abolished. In view of the backward steps which some American cities have taken in recent years in regard to the toleration of such houses, and in view of the sympathetic consideration which the citizens and officials of other cities are giving to proposals for such toleration, this carefully considered action by the League of Nations should prove timely and persuasive.

THE AMERICAN SOCIAL HYGIENE ASSOCIATION AND LOCAL SOCIETIES

Policies.—The work of voluntary societies in the social hygiene field has continued along the lines indicated by the definition in the opening paragraph. The National Association, so far as reduced funds have permitted, has continued its policy of stimulating interest and activities throughout the country. In many of the projects already described the Association has been the inspiration and prime mover, and in some cases assistance in the form of money and personnel has been given to social hygiene work carried on by other organizations.

Accomplishments.—Additional accomplishments of the Association for the year, 1934 are briefly summarized, as follows: In an attempt to better the training and experience of the general practitioner in handling cases of syphilis and gonorrhea a series of graduate teaching institutes has been held. Six in the South, in Birmingham, Ala.; Savannah, Ga.; Norfolk, Va.; Charleston, S. C.; Jacksonville, Fla., and Houston, Tex., were especially for Negro doctors. The fact that nearly all the Negro physicians in these cities attended the sessions, and that warm expressions of thanks were received by the Association afterwards attests the value of this type of practical help. Many additional lectures were given before medical societies, schools of medicine, and nurses' groups. In two other ways the Association continued its efforts to raise professional standards in the treatment of venereal diseases,—by helping to improve teaching in medical schools, and by encouraging medical examining Boards to draw adequate attention to qualifications of applicants for handling syphilis and gonorrhea in general practice. In another phase of educational work, also, the Association is attempting to raise teaching standards, in law schools, by furnishing teaching materials and lecture personnel. In view of the fact that lawyers as a group are in a strategic position to initiate as legislators and to interpret as judges important laws in the field of social hygiene, it is believed that they should receive training in the principles upon which such legislation is based.

Medical research projects sponsored or actually worked upon by the Association included a serological survey of Mora County, New Mexico, to find out how much syphilis there is in the general population, especially among the Spanish-American people, and also to devise means of treating infections in under-privileged rural groups. The Association also participated in the work of the National Research Council Committee on the Gonococcus, and in studies of the management of syphilis and gonorrhea in industrial concerns, one of them, a coal company, with its employees divided among seven company villages.

Education and Training.—In the field of education, encouragement and practical aid continued to be given to parent organizations, schools, and church groups attempting sex education and training for marriage and parenthood programs. Much preliminary preparation was made for the Conference on Education for Marriage and Family Relations held at Columbia University, the end of June, under the auspices of the College, the American Home Economics Association and the American Social Hygiene Association. More than 100 consultants participated in the plans for and the program of the conference, representing special interest groups, such as home economics, social hygiene, sociology, medicine, adult education, religious education and psychology. Large audiences attended the three days of meetings. *A Curriculum Study in Social Hygiene for Nurses* by Mae D. McCorkle was published as the result of a year's work under the joint auspices of the American Social Hygiene Association and the National League of Nursing Education, at Columbia University.

Studies and Reports.—A new and complete analysis of social hygiene laws was made by the Association. Prostitution studies were continued, and reports of conditions made in 59 cities in eight states and the District of Columbia. The information thus obtained was valuable in keeping abreast of changing social conditions, and in devising measures to meet the needs found, especially as they are affected by the financial depression in communities and also by the congregation of large groups of young men in camps, and on large construction projects such as the Tennessee Valley Authority.

National Programs.—As in previous years the Association continued its interest and help in the national programs of such groups as the American Library Association, the American Public Health Association, the National Tuberculosis Association, the American Medical Association, the Conference of State and Provincial Health Authority of North America, the National Congress of Parents and Teachers, the General Federation of Women's Clubs, the National Society for the Prevention of Blindness, the American Heart Association, the National Organization for Public Health Nursing and many other groups.

Community Work.—So far as possible assistance was given to local community groups responsible for social hygiene programs, and to communities newly attempting to organize work of this type. Houston, Tex., is an example of the latter, where several months of intensive effort put upon its feet what seems to be a continuing social hygiene program, with special emphasis on protective measures.

Publication Service.—The Association's publication service included the *Journal of Social Hygiene*, the *Social Hygiene News*, pamphlet distribution, lectures and radio talks. Social hygiene exhibits, posters, and films had a widespread use.

MEETINGS

Important meetings of the year included the Social Hygiene Regional Conference in New York City in January, under the auspices of the New York Tuberculosis and Health Association and other cooperating organizations; a joint meeting of the Kansas City Social Hygiene Society with the National Conference of Social Work in May; a social hygiene meeting with the New York State Conference of Social Work and the organization of a state conference committee on social hygiene to formulate a five-year conference program; the National Conference on Fundamental Problems in Negro Education arranged by the Government office of Education; the Institute on Protection of Youth, the Family, and the Community in Houston, Tex.; and the Conference on Education for Marriage and Family Social Relations at Columbia University.

MENTAL HYGIENE

By Paul O. Komora

Associate Secretary, The National Committee for Mental Hygiene

EFFECT OF ECONOMIC CRISIS ON HOSPITALS

A just appraisal of mental hygiene progress during 1934 must inevitably take into consideration the unusual economic situation of the last five years and its influence on activities in this field. Mention should, therefore, be made at the outset of a study conducted by The National Committee for Mental Hygiene, in collaboration with the American Psychiatric Association, to determine the effects of the economic crisis on public mental hospitals, a report of which is shortly to be published. This study shows that retrenchments in governmental expenditures have borne down heavily on state hospitals throughout the country. Annual maintenance budgets have been reduced anywhere from five to 40 per cent, with a net average reduction of about 15 per cent during the period covered by the survey, 1929-1933. No substantial improvements in the budget situation were anticipated for 1934. Taking the Federal Census figures for 1929-1932, a reduction in the annual per capita of expenditures for maintenance from $312.18 to $269.26 is found with a resultant loss in state hospital appropriations during this period estimated at over $20,000,000, this in the face of a constantly increasing patient population. Hard put to it to raise funds for operating necessities, legislatures in most of the states have drastically cut down appropriations for capital expenditures also, with the result that little money is available for new construction and improvements, the hospitals are unable to expand as they normally would, and overcrowding has increased in many institutions to a point where they are finding it necessary to refuse admissions. Therapeutic activities have been definitely curtailed in some of the hospitals, classification of patients is impaired, laboratory, research and training activities are seriously hampered, and out-patient and social services, educational and other extra-institutional work are equally handicapped. Superintendents are deeply concerned lest their institutions regress to the old custodial levels and the gains of years in therapeutic progress be lost. In spite of handicaps and diminished resources, however, state hospitals have, in general, held their own and are, on the whole, functioning with creditable efficiency and with a determination to uphold standards. The seriousness of the situation is not so much in what is found today as in the threat that the future holds, if economic conditions do not materially improve.

THE DEPRESSION AND MENTAL CASES

An attempt was made in the course of this study to answer the question, frequently asked, whether depression conditions have brought about an increase in mental cases. Measured in terms of mental disease of institutional severity, the answer seems to be ''not to any great extent, as yet.'' While most of the hospitals report a rise in first admissions and readmissions, many of which are attributed to economic conditions as a precipitating factor, such increases are not, on the whole, significant enough to warrant the belief that the depression is exercising a dominant influence on hospital admissions. They can readily be accounted for, in great part, by the rapid growth in hospital facilities in pre-depression years, increasing public confidence in state mental hospitals and a greater willingness to use them, and other similar factors. The figures do indicate that the patient population of mental hospitals has increased more rapidly since the depression set in, but they do not vary sufficiently from the normal trend of increase to demonstrate that the depression has markedly affected hospital admissions. The most that can be said is that the depression has been an important contributing factor in causing additional admissions and may become an increasingly important one if present economic conditions continue.

MENTAL HEALTH ACTIVITIES

In the field of extra-mural and community mental health activities, in which depressing economic conditions are assumed to have had their widest effect—in the production of a large but undetermined number of mental and nervous disturbances of a milder type and behavior and personality maladjustments of all sorts among all classes of the population—The National Committee for Mental Hygiene senses, paradoxically, an atmosphere of recovery suggestive of a slow but gradual convalescence and a spirit of confidence in the future. While preventive and treatment facilities for mental problems among adults and children in the community are exceedingly inadequate to current needs, certain trends reflecting the reaction that has set in after five years of depression have been noted. Expressive of the new temper and outlook are a tendency toward more critical evaluation, the reorganization of a number of child guidance clinics, an increase in state-sponsored activities in this field, a growing interest in mental hygiene service on the part of family and other community welfare agencies that have been relieved of more or less of their routine relief-giving functions, a closer integration between mental hygiene and other community agencies, and other significant changes.

A recent development has been the establishment of psychiatric clinical services in an increasing number of emergency relief and work relief bureaus and other depression projects under Federal, state and local auspices. During the past few months there has been heightened activity aimed at the organization of new clinic endeavors and the strengthening of established enterprises on a statewide basis, as well as in some of the larger cities. A noteworthy example is the pending expansion of the Bureau of Child Guidance established in the public schools of New York City in 1932. The doubling of its budget a few months ago now makes it possible to extend its services, hitherto confined to the Borough of Manhattan, to the other four political subdivisions of the city, so that the entire school system may benefit, directly or indirectly, from its work. It is also significant that the superintendent of schools has recently announced a plan for widespread revision of the curriculum and conduct of the schools in line with the increasing appreciation of the principles and practices underlying child guidance work shown by the school authorities in recent years. The resolutions adopted by the New York Principals' Association at its annual meeting last May evidence this permeation of the schools with the mental hygiene viewpoint that, in part, grows out of the educational work of the Bureau of Child Guidance and also reflects the established interest that made the clinic possible in the first instance. The school principals urged, among other progressive goals, "that less emphasis be given in our educational work to the mere mastery of factual knowledge, and that much more educational emphasis be given to moral growth, character formation, and the development of wholesome personalities of children through the acquisition of healthy mental, social and spiritual attitudes and reactions; and that more and more attention be given by teachers and supervisors to those constructive principles of mental hygiene and individual pupil guidance which should be incorporated in all phases of school work."

SCOPE OF SOCIAL WORK

The infiltration of mental hygiene into social agencies of all kinds has been markedly enhanced by the depression, thanks to the increasing recognition of what mental hygiene can contribute to human adjustment in all its phases, and to the development of the child guidance movement and other community mental health activities during the past ten to 15 years. This is reflected in the increasing demand for the services of the psychiatric social worker, who represents one of the three types of key workers engaged in the mental hygiene field, the others being the psychiatrist and the clinical psychologist. A study made by the American Association of Psychiatric Social Workers last year shows a steady increase in the number and types of community agencies employing its members. This is especially true of family welfare organizations which increased the number of their psychiatric social workers by 18 in 1932, 33 in 1933, and 74 in 1934. (There are in all about one thousand persons in psychiatric social work positions in the United States at the present time.) There has been a similar influx of psychiatric workers into emergency relief agencies which are requiring more and more that their social workers have psychiatric background and training, especially for positions of leadership, as mental hygiene supervisors, case consultants, directors of training, etc. This has created some difficulty in filling positions in the psychiatric field itself and has emphasized the shortage of mental hygiene workers in general.

PSYCHIATRIC EDUCATION

The problem of the dearth of psychiatric personnel has received special attention by the National Committee for Mental Hygiene in its activities in the field of medical education since 1931. Its studies of psychiatric education in the United States during the past year indicate that 27 of the country's 80-odd medical schools have shown a definite improvement in their teaching, personnel, curriculum or clinical facilities. Summing up progress in this direction in the last three years, the committee finds that (1) at no time before have so many forces been working for the improvement of the status of psychiatric education in the United States; (2) state and national boards of medical examiners are showing significant interest in incorporating psychiatry in their examination procedures; (3) mental hospitals are becoming increasingly aware of the necessity of higher standards in training for psychiatry; and (4) progressively more medical students are showing an interest in seeking and competing for psychiatric fellowships. The movement for the establishment of an authoritative body to regulate the practice of mental medicine and to maintain professional standards in this field came to a head last year with the incorporation, on October 20, of the American Board of Psychiatry and Neurology. The functions of this Board as they relate to psychiatry will be (1) to establish standards of fitness for the practice of this specialty; (2) to name universities, hospitals, clinics and preceptors recognized as competent to give psychiatric training; (3) to encourage and stimulate the development of adequate training facilities; and (4) to arrange, control and conduct examinations for the certification of psychiatrists. Certification by the Board will constitute evidence of recognized training and experience in psychiatry and will entitle the holder to be designated as a specialist in this field in the directory of the American Medical Association.

A significant development in mental hygiene in 1934 in connection with the field of education was a nation-wide effort begun last fall by the National Committee for Mental Hygiene, with financial aid from the Carnegie Corporation, to inquire into the fitness of public school teachers from the standpoint of personality and mental health. This inquiry will deal, in its preliminary phase, with the evaluation of existing methods of teacher training and selection, and the study of ways and means of bettering them for the benefit alike of the teaching profession, the schools and their pupils. The project was undertaken in the belief that regimentation in schools and the emphasis on subject matter in current teaching practice have in too many instances developed to such a point that they are harmful to the children, and that certain reforms in the present system may well contribute to the prevention of mental disabilities, conduct and personality disorders and other forms of individual and social maladjustment. The program calls for a study of the personalities of individual teachers who are having a beneficial influence upon pupils, from the mental hygiene point of view, as well as those having a detrimental effect, the analysis of training methods with special reference to personality values in prospective teacher selection and elimination, an attempt to determine what fundamentals in mental hygiene should be acquired by teachers in training, and experimental demonstrations to test out various techniques and procedures in teacher training and selection.

STUDY OF DEMENTIA PRAECOX

Another important event in the mental health field in 1934 was the inauguration of a special study of dementia praecox, one of the more serious types of mental disorder whose victims occupy more hospital beds in this country than those of all other forms of mental disease combined. An initial fund, to be administered by the National Committee for Mental Hygiene, has been appropriated by the Supreme Council, 33°, Northern Masonic Jurisdiction, U.S.A., to explore the possibilities for research in this connection, with a view to acquiring a wider and deeper and more detailed knowledge of the nature and causes of this disease, one of the most baffling and obscure problems in all mental medicine. A special committee, composed of some of the foremost leaders in American psychiatry, is in charge of the project. The first year's work of the committee will be in the nature of an inquiry into existing research activities, the methods used in the treatment and control of dementia praecox, and an appraisal of various scientific approaches in the study of the disease. An effort will be made to seek out scientists who give greatest promise in research work in this field and to identify those agencies whose organization, facilities, personnel and quality of work mark them as most worthy of support and development. Subsequent activities contemplated as a result of this preliminary work will include (a) financial support of selected research projects in hospital, clinical, university and other suitable settings; (b) promotion of early diagnosis, prompt treatment and prevention of dementia praecox; (c) the exchange of experience between research workers in the field, and (d) educational activities directed to the medical profession, special groups and the general public.

NATIONAL COMMITTEE FOR MENTAL HYGIENE ANNIVERSARY

The completion of a quarter century of organized work for mental health in the United States was celebrated by the National Committee for Mental Hygiene last year. The main event was a commemorative meeting held in New York City on Nov. 14, at which the 25th anniversary of the founding of this body was formally observed. Five of the seven surviving founding members of the organization and over 600 persons from various sections of the country, representing mental hygiene, psychiatry, psychology, medicine, education, social work, law and other fields, gathered on this occasion to pay tribute to the achievements of Clifford W. Beers and the now worldwide movement he started. Notable addresses were made by President James R. Angell of Yale University, Dr. Adolf Meyer, Professor of Psychiatry at Johns Hopkins University, who gave the mental hygiene movement its name, Jacob Gould Schurman, former Ambassador to Germany and former President of Cornell University, Dr. M. J. Rosenau, Professor of Preventive Medicine and Hygiene at Harvard Medical School, Dr. Arthur H. Ruggles and Dr. Clarence M. Hincks, President and General Director, respectively, of the National Committee, and Mr. Beers, founder and Secretary of the organization and the movement. Students of mental hygiene will find in this collection of papers, published in the January, 1935, issue of the Committee's quarterly journal, *Mental Hygiene,* an interesting and instructive record and interpretation of the progress and accomplishments of the mental hygiene movement during the past 25 years and a forecast of the challenging tasks awaiting workers in this significant and rapidly expanding field of human, scientific and social effort in the years to come.

CHILD WELFARE

BY C. C. CARSTENS

EXECUTIVE DIRECTOR, CHILD WELFARE LEAGUE OF AMERICA, INC.

THE EFFECT OF EMERGENCY RELIEF

The most significant fact in the field of child welfare during the past year has been the effect that the national program for relief has had upon the care of children throughout the nation. Widespread family relief has kept families together, even though on a meagre economic basis. Institutions for children have shown a decline rather than increase in their populations. Foster home care has shown a slight increase. Care provided from tax funds has shown the largest increase while private care in this field also has either shrunk in the various communities or increased but slightly. The number of children cared for in their own homes on a budgetary basis by means of mothers' aid has shown shrinkage.

MOTHERS' AID

There was a marked drop between 1932 and 1933 in the number of applications for mothers' aid allowances, fewer allowances were granted in 1933 and the number that were cancelled was increased. This tendency has been further emphasized during the past year. Many counties have ceased making appropriations and but few new ones have made them for the first time. The monthly average grant from public funds for mothers' aid in 85 cities and city areas, which was $46.28 in 1931 and $44.70 in 1932, was reduced to $39.12 in 1933.

The effect of a reduction in grants and the cancellation of those that had been previously accepted has, however, not been as serious as the figures in mothers' aid alone would indicate, for in a good many of the states families which ceased to be aided through mothers' aid funds were transferred to the relief lists. The result of this transfer in most instances meant lower budgets for the families, but a large proportion of these families were able to maintain themselves even on that meagre basis so as to make the transfer of the children to foster care unnecessary. While mothers' aid is intended to be the usual means for the care of the children of widows it has been found that in many states at the present time a larger number of widows' children are being cared for through direct family relief than under the various mothers' aid statutes.

FOSTER CARE OF CHILDREN

The decrease in institutional care of children which was so marked in the latter part of 1933 has not continued. Although the number in care during the first three months of 1934 was still about ten per cent less than the 1929 average, since that time there has been a small but steady increase in institutional care.

The number of children in foster family homes showed a steady increase over 1929 until the beginning of 1933, when it fell off with the extensive development of relief. But since the middle of 1933 it has begun a steady increase, and the number is now about 35 per cent above the number in foster family care in 1929. The placement in free homes has fallen off but the increase in the number of children in boarding homes is especially marked.

The number of children cared for in day nurseries has shown a steady decrease during the years of economic depression and the average number in 1933 was 26 per cent less than in 1929.

THE PLIGHT OF CERTAIN GROUPS OF CHILDREN

The relief policy in vogue under the general direction of the Federal Emergency Relief Administration has proved a blessing to millions of children, but the narrow budgets and the lack of funds for suitable habitation has left a considerable group of children living in hovels without proper health facilities and with inadequate provision for clothing, food and other necessaries of life. The older children for whom there is no work are slipping away from inadequate homes, and a considerable number have become transients or the unattached in our cities. Another group of children, cared for illegally in county almshouses, mingle with the miscellaneous population of such institutions, including the depraved of both sexes. In some localities children who had been removed from their homes because of neglect or cruelty have been returned to those homes in which conditions are unimproved. Others are permitted by relief officials or courts to remain in homes where neglect, cruelty or depravity exists because no money is made available for their support elsewhere. Some of them are already presenting serious behavior problems and are being sent to schools for delinquent boys and girls.

While some of the states are providing additional budgets for direct state care of children away from home or are supplementing county budgets, no Federal relief money is at present being spent for dependent children.

The plight of needy boys and girls reaching the age of 16 years is particularly serious since but few institutions or agencies are financially or otherwise equipped to satisfy their physical, intellectual and recreational needs.

CHILD HEALTH AND MORTALITY

The favorable health and mortality records that have obtained during the earlier years of the depression continued through 1933, but the records for 1934, as far as they have become available, would indicate that there has been a slight increase in the infant mortality rates as well as in general mortality rates throughout the country.

While the diphtheria death rate has become a negligible item in mortality statistics the mortality rate is still declining. The record for diseases attendant on pregnancy and childbirth has also shown a favorable report for the first half of 1934. This may, however, be in part the result of a steadily declining birth rate, but the maternal death rate seems to be dropping faster than the birth rate.

It is still true that fatal accidents to children are most numerous to young children under the age of five years, the greater accident frequency occurring from the result of burns, automobile accidents, mechanical suffocation, drowning, falls, and poisoning. Nevertheless, one encouraging aspect is that the death rate has declined twenty per cent in the last ten years.

NEW CHIEF OF FEDERAL CHILDREN'S BUREAU

During the year Grace Abbott, who had been Chief of the Children's Bureau of the United States Department of Labor for 13 years, resigned, and Katharine F. Lenroot who had been the Assistant Chief for some years was appointed to succeed her.

PROBATION

By Joel R. Moore

Supervisor of Probation, Bureau of Prisons, Department of Justice

PROPOSED REFORMS IN NEW HAMPSHIRE

A strong public sentiment for the improvement of its juvenile courts and probation was expressed by the report of a special committee of the New Hampshire Conference of Social Work upon "The place of Adequate Probation, Juvenile and Domestic Relations Courts in the Judicial System of New Hampshire." Emphasis was laid upon the fact that not only was it necessary for an adequate juvenile probation system to have a personnel of officers sufficient in numbers, ability and training, but also "judges who are appreciative of its possibilities and limitations, and a public that recognizes its place in dealing with crime and makes available all of its cooperative agencies to the common end of rehabilitation and protection." The report recommended that the legislature should create a State Board with power to divide the state into juvenile court districts and nominate to the Governor for his appointment to life tenure as Juvenile and Domestic Relations Judges members of the bar most highly qualified for such judicial duties.

STATEWIDE SUPERVISION IN INDIANA

During the year Indiana set up its state-wide system of supervision. Its non-political, unpaid, Probation Commission of four appointed a chief administrative officer and inaugurated competitive examinations. At the first examination 149 officers were certified, about half old officers and half new candidates. The National Probation Association gave its expert assistance in setting up the examinations. Governor McNutt proclaimed a Probation Week in June during which period press and radio and speakers before public assemblies joined with them in explanation of the aims, methods and advantages of the proper use of probation by the courts.

LEGAL FORMALISM IN CHILDREN'S COURTS

In the President's address before the annual conference of Children's Court Judges of New York, Judge Smith said: "After almost five years of daily association with this Children's Court Act of ours, I find it woefully deficient as a vehicle for carrying into effect the declared humane attitude of the state toward its children . . . Let us remember that the proceedings are not against the child, but are intended for its protection . . . It should not be necessary to charge a child with delinquency . . . Our Children's Courts are still too formal, too legalistic, too much resemble Criminal Courts in their approach to and treatment of children's problems . . . We should strive to remove the dread of the Court which exists in parents' minds, and to make of it a socialized institution in the nature of a clinic to which parents and others would unhesitatingly come with their problems. A residue of authority must be preserved, for there are cases which yield only to authority. But if Children's Courts are to achieve their highest destiny, if they are to function as truly useful instruments for the guidance of children, they must shed their present forbidding garb, drop formal charges and judgments, stop condemning and ordering, and offer instead kindness, friendly guidance, and understanding treatment of human problems.''

CONTROVERSY OVER JUVENILE COURTS

In February, Dr. Richard Cabot's article in *The Survey,* purporting to be a review of the new book by Sheldon and Eleanor Glueck, *One Thousand Juvenile Delinquents,* began a controversy over the effectiveness of juvenile courts which ran for months. A startled country learned from the article that the noted Boston Juvenile Court, its noted Judge Baker Foundation clinic, and its probation system, had been found from an exhaustive study by the Harvard Crime Survey to have failed in 88 per cent of the juvenile delinquents handled. Press and periodical comments followed along the same tenor. But other students, judges, probation authorities and discerning readers of the book took vigorous issue. At the annual conference of the National Probation Association in Kansas City, Dr. Glueck defended his findings and Judge Harry L. Eastman of Cleveland vigorously assailed the findings. The *Year Book of the National Probation Association* carries the two controversial addresses and the rejoinders prepared by each. Later in the year was published the results of a study of 500 juvenile delinquents in the same court and clinic by Belle Boone Beard, in her book on *Juvenile Probation.* Her findings were at variance with the Gluecks'. ''The apparent discrepancy between Miss Beard's results of 43% to 76% probation success as against the Gluecks' report of 88% failures among 1,000 juveniles who passed through the same court and clinic,'' says the University of Michigan *Delinquency News Letter,* ''may be accounted for by the fact that the Gluecks studied all cases whether placed on probation or not while Miss Beard confined herself to probation cases only.'' At any rate the controversy stimulated juvenile courts, probation departments and clinics to self-criticism of their aims, processes, community resources or handicaps, and their real results.

PRINCETON UNIVERSITY SURVEY

Under the auspices of Princeton University a survey was made of probation in New Jersey. Its recommendations might well apply to other states. It first of all recommended unification of the probation service by some well-planned state system of supervision. For the individual county systems it strongly recommended employment of full-time, trained officers instead of using part of the time of minor officials, more coordination of probation officials with social welfare agencies, improvements in equipment in record-keeping, more extensive use of pre-sentence investigations.

FEDERAL AND STATE COOPERATION

During the year by joint effort of the probation department of the Bureau of Prisons and the delinquency department of the U. S. Children's Bureau, progress was made in securing the cooperation of Federal and state officials of correctional justice concerned with the handling of those juveniles under the age of 19 who come into custody of Federal officers. Effort was constantly made to transfer jurisdiction of the juvenile to state juvenile or other suitable court for hearing and treatment in all cases where it would be to the best interest of the government and of the individual juvenile delinquent. To this end representatives of both Federal Bureaus concerned much of the time kept representatives in the field contacting the state officials and surveying the state resources. In March two great conferences of state, city, county and local delegates concerned with the juvenile delinquency problem met with Federal officials, in Dallas, Tex., for the Southwestern states and in Atlanta for the Southeastern states. Every month on the average 500 juveniles are taken into Federal custody for violation of law.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

JUSTICE AND MAINTENANCE OF ORDER

American Bar Assn., Section on Criminal Law, Endicott Bldg., St. Paul, Minn.

American Civil Liberties Union, 100 Fifth Ave., New York City.

American Council of Learned Societies, 597 Fifth Ave., New York City.

American Institute of Criminal Law and Criminology, 357 E. Chicago Ave., Chicago, Ill.

American Law Institute, 3400 Chestnut Street, Philadelphia, Pa.

American Prison Assn. of N. Y., 135 E. 15th St., New York City.

National Committee on Prisons and Prison Labor, 250 W. 57th Street, New York City.

National Crime Commission, 120 Broadway, New York City.

National Police Conference, 240 Centre St., New York City.

National Probation Assn., Inc., 450 Seventh Ave., New York City.

National Society of Penal Information, 114 E. 30th St., New York City.

Society for the Prevention of Crime, 177 William St., New York City.

Women's Prison Assn., 110 Second Ave., New York City.

SOCIAL ORGANIZATIONS

American Political Science Association, 205 Bennett Hall, University of Pennsylvania, Philadelphia, Pa.

American Red Cross, 17th between D and E Sts., Washington, D. C.

American Seamen's Friend Society, 72 Wall Street, New York City.

American Society for the Prevention of Cruelty to Animals, 50 Madison Ave., New York City.

Boy's Clubs of America, Inc., 381 Fourth Ave., New York City.

Boy Scouts of America, 2 Park Ave., New York City.

Children's Aid Society, 15 E. 22nd St., New York City.

Civic Forum, 123 W. 43rd St., New York City.

Federal Council of Churches, Etc.—Commission on the Church and Social Service, 105 E. 22nd St., New York City.

Girls' Friendly Society of the U. S. A., 386 Fourth Avenue, New York City.

Girls' Service League of America, 138 E. 19th St., New York City.

Humane Society of New York, 49 Seventh Ave., New York City.

National Catholic Welfare Conference, 1312 Massachusetts Ave., N. W., Washington, D. C.

National Social Work Council, 450 Seventh Ave., New York City.

Thrift League of America, 480 Lexington Ave., New York City.

Young Men's Christian Assn., International Committee, 347 Madison Ave., New York City.

Young Women's Christian Association, 129 E. 52d St., New York City.

SOCIAL FRATERNITIES

Benevolent and Protective Order of Elks of the U. S. A., 2750 Lake View Ave., Chicago, Ill.

International Assn. of Lions Clubs, 332 S. Michigan Ave., Chicago, Ill.

Kiwanis International, 164 W. Jackson Blvd., Chicago, Ill.

Knights of Columbus, 45 Wall St., New Haven, Conn.

Knights of the Klu Klux Klan, Inc., 2621 Peachtree St., Atlanta, Georgia.

KNIGHTS OF PYTHIAS, 1054 Security Building, Minneapolis, Minn.

LOYAL ORDER OF MOOSE, Mooseheart, Ill. (Supreme Lodge of the World).

MODERN WOODMEN OF AMERICA, 1504 Third Ave., Rock Island, Ill.

ROTARY INTERNATIONAL, 211 W. Wacker Drive, Chicago, Ill.

SOVEREIGN GRAND LODGE OF THE INDEPENDENT ORDER OF ODD FELLOWS, 12 West Chase St., Baltimore, Md.

SUPREME COUNCIL OF THE ROYAL ARCANUM, 407 Shawmut Ave., Boston, Mass.

SUPREME COUNCIL, 33° ANCIENT & ACCEPTED SCOTTISH RITE.—Northern Jurisdiction, 1117 Statler Building, Boston, Mass.—Southern Jurisdiction, 1733 16th St., N. W., Washington, D. C.

WOODMEN OF THE WORLD, Sovereign Camp, 14th and Farman Sts., Omaha, Neb.

(SOCIAL) HOME LIFE

LANDLORDS' COOPERATIVE ASSN., 18 E. 41st St., New York City.

NATIONAL HOUSING ASSN., 105 E. 22nd St., New York City.

NATIONAL PLANT, FLOWER & FRUIT GUILD, 70 Fifth Ave., New York City.

NEW YORK ASSN. FOR IMPROVING THE CONDITIONS OF THE POOR, 105 E. 22nd St., New York City.

(SOCIAL) CHILDREN

BIG BROTHER AND BIG SISTER FEDERATION, INC., 425 Fourth Ave., New York City.

BIG BROTHER MOVEMENT, INC., 315 Fourth Ave., New York City.

CAMP FIRE GIRLS, INC., 41 Union Square, New York City.

CHILD CONSERVATION LEAGUE OF AMERICA, 318 W. Washington St., Chicago, Ill.

CHILD WELFARE LEAGUE OF AMERICA, 130 E. 22nd St., New York City.

CHILDREN'S AID SOCIETY, 15 E. 22nd St., New York City.

HEBREW SHELTERING GUARDIAN SOCIETY, Pleasantville, N. Y.

NATIONAL CHILD LABOR COMMITTEE, 419 Fourth Ave., New York City.

NATIONAL CHILD WELFARE ASSN., 70 Fifth Ave., New York City.

SANTA CLAUS ASSN., INC., 152 W. 42nd St., New York City.

(SOCIAL) HEALTH

AMERICAN ASSN. OF SOCIAL WORKERS, 130 E. 22nd St., New York City.

AMERICAN BIRTH CONTROL LEAGUE, 689 Madison Ave., New York City.

AMERICAN CHILD HEALTH ASSN., 450 Seventh Ave., New York City.

AMERICAN FOUNDATION FOR THE BLIND, INC., 125 E. 46th Street, New York City.

AMERICAN HUMANE ASSN., 50 Madison Ave., New York City.

AMERICAN MISSION TO LEPERS, 156 Fifth Ave., New York City.

AMERICAN SOCIAL HYGIENE ASSN., INC., 450 Seventh Ave., New York City.

ANTI-PROFANITY LEAGUE, Ware, Mass.

BETTER FILMS, NATIONAL COUNCIL, 70 Fifth Ave., New York City.

CHARITY ORGANIZATION SOCIETY OF THE CITY OF NEW YORK, 105 E. 22nd St., New York City.

CHICAGO CRIME COMMISSION, 300 W. Adams St., Chicago, Ill.

CREMATION ASSN. CO. OF N. Y., 181 W. 238th St., New York City.

EUGENICS RESEARCH ASSN., Cold Spring Harbor, L. I., N. Y.

NATIONAL COMMITTEE FOR MENTAL HYGIENE, 450 Seventh Ave., New York City.

NATIONAL HEALTH COUNCIL, 450 Seventh Avenue, New York City.

NATIONAL HOUSING ASSN., 105 E. 22nd St., New York City.

NATIONAL RECREATION ASSN., 315 Fourth Avenue, New York City.

NATIONAL SAVE-A-LIFE LEAGUE, INC., 299 Madison Ave., New York City.

NEW YORK SOCIETY FOR THE SUPPRESSION OF VICE, 215 W. 22nd St., New York City.

NON-SMOKERS' PROTECTIVE LEAGUE OF AMERICA, 101 W. 72nd St., New York City.

TRAVELERS' AID SOCIETY OF N. Y., 144 E. 44th St., New York City.

(SOCIAL) TEMPERANCE

ANTI-SALOON LEAGUE OF AMERICA, 150 Fifth Ave., New York City.

NATIONAL TEMPERANCE SOCIETY, 289 Fourth Ave., New York City.

WORLD NARCOTIC DEFENSE ASSN., 578 Madison Ave., New York City.

FOUNDATIONS

CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE, 2 Jackson Place, Washington, D. C.

CARNEGIE FOUNDATION, 522 Fifth Ave., New York City.

CARNEGIE HERO FUND COMMISSION, 2307 Oliver Bldg., Pittsburgh, Pa.

CARNEGIE INSTITUTION OF WASHINGTON, 16th and P Sts., N. W., Washington, D. C.

GENERAL EDUCATION BOARD, 49 W. 49th Street, New York City.

GUGGENHEIM FOUNDATION, 551 Fifth Ave., New York City.

HALL OF FAME FOR GREAT AMERICANS, University of the City of New York, New York City.

MORO EDUCATIONAL FOUNDATION, 475 Fifth Ave., New York City.

ROCKEFELLER FOUNDATION, 49 W. 49th Street, New York City.

ROCKEFELLER INSTITUTE, York Ave. and 66th St., New York City.

ROOSEVELT MEMORIAL ASSN., 28 E. 20th St., New York City.

RUSSELL SAGE FOUNDATION, 130 E. 22nd St., New York City.

WOODROW WILSON FOUNDATION, 6 E. 39th St., New York City.

WOMEN'S WORK AND PROGRESS

AMERICAN ASSN. OF UNIVERSITY WOMEN, 1634 I St., N. W., Washington, D. C.

AMERICAN NURSES' ASSN., 450 Seventh Ave., New York City.

AMERICAN WOMEN'S ASSN., INC., 353 W. 57th Street, New York City.

GENERAL FEDERATION OF WOMEN'S CLUBS, 1734 N St., N. W., Washington, D. C.

GIRLS SERVICE LEAGUE OF AMERICA, 122 East 22nd St., New York City.

NATIONAL AMERICAN WOMAN SUFFRAGE ASSN., Grand Central Terminal, New York City.

NATIONAL ASSOCIATION OF WOMEN PAINTERS AND SCULPTORS, 42 W. 57th St., New York City.

NATIONAL COUNCIL OF ADMINISTRATIVE WOMEN IN EDUCATION, 1211 Gilpin Ave., Wilmington, Del.

NATIONAL COUNCIL OF WOMEN, U. S. A., 4 Park Ave., New York City.

NATIONAL FEDERATION OF COLLEGE WOMEN, Rolla, Mo.

NATIONAL LEAGUE OF WOMEN VOTERS, 532 17th St., N. W., Washington, D. C.

NATIONAL WOMAN'S CHRISTIAN TEMPERANCE UNION, 1730 Chicago Ave., Evanston, Ill.

NATIONAL WOMAN'S PARTY, 144 B St., N. E., Washington, D. C.

NATIONAL WOMAN'S RELIEF CORPS, 64 Spring St., Oberlin, Ohio.

PROFESSIONAL WOMEN'S LEAGUE, Broadway and 73d Street, New York City.

SOUTHERN WOMEN'S EDUCATIONAL ALLIANCE, 401 Grace-American Building, Richmond, Va.

WOMEN'S EDUCATIONAL AND INDUSTRIAL UNION, 264 Boylston St., Boston, Mass.

WOMEN'S ROOSEVELT MEMORIAL ASSN., Roosevelt House, 28 E. 20th St., New York City.

WOMEN'S TRADE UNION LEAGUE, 247 Lexington Ave., New York City.

DIVISION XVI

LABOR AND LABOR LEGISLATION

LABOR CONDITIONS

BY ISADOR LÜBIN

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GENERAL

The year, 1933, had been one of so many dramatic happenings in the field of labor that 1934 almost necessarily had some of the outward aspects of an anti-climax. Nevertheless, the developments under the second year of the National Recovery Act and allied measures were of great significance—such, for instance, as the occurrence of several industrial disputes of country wide importance, the increasing demand for various forms of social insurance, experiments with public work and relief programs on a scale never before attempted, and the development of acute controversy on the interpretation of section 7(a)—the collective bargaining section—of the National Industrial Recovery Act.

EMPLOYMENT

Employment and payrolls in practically all industries were at somewhat higher levels in 1934 than they had been in 1933, in spite of some recession in the latter part of 1934, and, with very few exceptions the indexes of both employment and payrolls in each month of 1934, were in excess of the indexes for the corresponding months of the preceding year. For manufacturing as a whole, the employment index in November, 1934, was 76.8 as against 76.2 in November, 1933, and 63.4 in November, 1932; the corresponding payroll indexes were 59.5 in November, 1934, 55.5 in November, 1933, and 42.9 in November, 1932. Thus, at the end of 1934, manufacturing employment, while still almost one quarter lower than in the base period, 1923-1925, was some 20 per cent higher than two years previously, and payrolls were almost 40 per cent higher in November, 1934, than in November, 1932.

Non-manufacturing industries—mining, retail trade and building construction—had, for the most part, a similar record of irregular but definite improvement, particularly as regards payrolls, which, for all but one of the 18 non-manufacturing groups, covered by the Bureau of Labor Statistics reports, were higher in November, 1934 than in the corresponding month of 1933.

WAGES AND HOURS OF LABOR

A large number of industrial codes did not become operative until 1934, and others were amended in the latter year. As a result of this, and other factors, hours of labor per week averaged, for most industrial groups, lower in 1934 than in 1933, while average hourly earnings increased. Thus, for all manufacturing industries covered by the Bureau of Labor Statistics reports, average hours worked per week were 34.1 in November, 1934, as against 34.4 in November, 1933, and, during the same period average hourly earnings increased from 51.9 cents to 55.4 cents, or 6.7 per cent. The effect of these two movements was a small increase in per capita weekly earnings—$17.71 in November, 1933, to $18.86 in November, 1934.

In non-manufacturing industries, average hours worked per week in November, 1934, ranged from 26.7 in bituminous coal mining to 47.1 in the hotel industry, and average hourly earnings ranged (excluding hotels in which the value of board, room and tips cannot be computed) from 37.1 cents in laundries to 82.8 cents in anthracite mining. In each of the non-manufacturing industries covered by the bureau's survey, there was a very considerable increase in hourly earnings during this period of a year. Hours per week were in some cases higher and in other cases lower but in all cases there were increases in per capita weekly earnings during the period from November, 1933 to November, 1934.

CHANGES IN COST OF LIVING

The average cost of the goods purchased by the families of wage workers continued the increase which began in 1933. The advances, however, were very moderate, the index numbers as compiled by the Bureau of Labor Statistics being 2.8 per cent higher in November, 1934 than in December, 1933. The higher level was due primarily to an increase in the retail prices of food of about 8 per cent. Rentals showed a decline.

UNEMPLOYMENT RELIEF

In spite of an improvement in the general employment condition in 1934, the number of unemployed needing relief continued to increase. This was due primarily, no doubt, to the depletion of the resources of many families because of long-continued idleness. As a result the expenditure of funds for relief by the Federal Emergency Relief Administration continued at a high level. As an example, during August, 1934, according to the reports of the FERA, some 17,130,000 persons, or about 14 per cent of the total population, were in receipt of public relief, this representing an increase of nearly 2,000,000 persons over the same month in 1933. During the first seven months of 1934, public funds spent for such relief amounted to $679,000,000, of which the Federal Government contributed 67 per cent.

In addition to the grant of direct money relief to families and individuals in distress, a great volume of work was created by the expenditure of Federal funds. In October, 1934 the total number of persons furnished employment through the PWA, the Civilian Conservation Corps, state roads, Reconstruction Finance Corporation self-liquidating projects, emergency relief work, and by work under direct Congressional appropriations, amounted to 2,601,611.

With the assistance of Federal funds, many work projects were initiated by state emergency relief authorities. Among these were the establishment of workrooms in which persons on relief rolls were employed to make mattresses, sheets, pillow slips, etc. for distribution among the relief clients. A further step was taken in Ohio with the setting up of a corporation whose function was to take over and operate (with relief workers) idle factories. Eleven factories, manufacturing clothing and furniture, had been opened by the end of the year, and others were contemplated. This undertaking aroused widespread interest and similar measures are being considered in other states.

Various productive enterprises on a small scale were also inaugurated by groups of unemployed themselves. These self-help groups, the first of which was formed early in 1931, were able, with the aid of small Federal grants, to supply themselves with a rather wide variety of articles, either to supplement relief or to forestall their having to accept relief.

SOCIAL SECURITY

Legislative Program. — Naturally the long-continued distress conditions stimulated interest in possible measures to prevent their recurrence and to insure some degree of security for the workers. The security measures most frequently advocated have been those establishing various forms of social insurance. The subject of old-age pensions has been receiving attention in Congress for a number of years and in the 73d Congress the Dill-Connery Bill which would have provided Federal aid to states with old-age pension systems was favorably reported in both Houses just before the close of the session. President Roosevelt, who, as Governor of New York, signed the Pension Act of that state, in June, 1934, appointed a committee to study the whole question of social security with a view to formulating a legislative program for the consideration of Congress. This committee's report made public January 16, 1935, recommended a general system of old-age pensions, unemployment compensation, children's aid, and increased provision for public health work.

Old-age Pensions. — The need for some form of assistance to state pension systems was revealed in the Bureau of Labor Statistics' annual survey covering the experience in 1933. That study showed that while some 115,000 aged persons were being cared for under state plans with an expenditure for the year of nearly $26,000,000, the systems were not meeting the whole need. The increasing difficulty of finding funds with which to meet the expenses of the system was resulting either in spreading thinner the available money or in the refusal to grant additional pensions. In some cases the waiting list was larger than the pension roll. At the end of 1934, there were 28 states and two territories which had old-age assistance laws on the statute books. In several cases, however, the law was entirely inoperative, and in others the effectiveness of the act was hindered by lack of sufficient funds.

A small number of labor organizations pay old-age pensions, but only the larger and stronger unions can bear the expense entailed by such a system. In 1933, the benefits paid to superannuated unionists aggregated $4,678,636 as compared with $6,148,302 in 1932.

Unemployment Insurance. — The unemployment-insurance law of Wisconsin which was passed in 1932 but was postponed until industrial conditions were more favorable became compulsory on July 1, 1934. Benefits are to be payable under the act on July 1, 1935. The act covers employers of 10 or more persons and provides for benefits of $10 per week or 50 per cent of the wage, whichever is lower, but not less than $5 per week. There is a waiting period of 2 weeks before benefits begin. The Wisconsin Act is the only legislative enactment in this field in the United States, although the subject of unemployment insurance has been studied by commissions in a number of other states. In Virginia, a commission appointed to study the subject made its report late in the fall of 1934; this report recommended the establishment of a system of unemployment insurance and reserves. A similar investigatory commission was provided for by the 1934 Legislature of Massachusetts.

Unemployment benefits are paid by a small number of national and international trade unions and by many locals. To do this the working members have assessed themselves heavily, in the attempt to care for their membership without recourse to public assistance. The report of the Executive Council of the American Federation of Labor to the 1934 convention shows that during 1933 the benefits for this purpose amounted to $13,784,043.

LEGISLATION AND COURT DECISIONS

Several acts of much importance to labor were passed by Congress while in session during the first six months of 1934. These were the act authorizing the establishment of the National Labor Relations Board, the National Housing Act, a measure authorizing the President to accept membership, for the United States, in the International Labor Organization, and an act providing a national compulsory system of retirement for railroad employes. The last-named act was declared unconstitutional by the Supreme Court of the District of Columbia, but it is expected that appeal will be taken from this decision.

Of general interest in the field of labor legislation was the National Conference on Labor Legislation called by the Secretary of Labor in February, 1934, with a view to obtaining closer cooperation between the Federal Government and the states, toward working out a sound program of labor legislation. Several regional conferences, growing out of the national meeting, were also held during the year. (For further information, see "Labor Legislation," p. 603.)

THE LABOR MOVEMENT

By Isador Lubin

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UNIONIZATION IN MASS-PRODUCTION INDUSTRIES

Campaign for Federal Unions.— The outstanding development of the year in the field of organized labor was the growth of organization among semi-skilled workers in the mechanized, mass-production industries, and the consequent change of policy on the part of the American Federation of Labor. Under the impetus of section 7 (a) of the National Industrial Recovery Act, which grants all workers the legal right to join unions of their own choosing, a vigorous organizing campaign was launched in a number of mass-production industries, including automobile and rubber manufacture, aluminum and cement. Workers in these industries were organized into federal labor unions chartered directly by the American Federation of Labor without regard to the craft or occupation they followed, that is to say, the unit of organization was plant or shop, not trade. Early in 1934 a conference was called in Washington to determine organizing policies with relation to these rapidly developing federal unions. One of the decisions of this conference was that "the fullest possible latitude be exercised by the executive council in the granting of federal charters and that, where or whenever a temporary infraction of the rights of national and international unions may be involved, the executive council adjust such difficulties in the spirit of taking full advantage of the immediate situation and with the ultimate recognition of the rights of all concerned." This decision implied a temporary truce with the A F of L's cardinal principle of trade autonomy, but suggested that with the "ultimate recognition" of that principle, established national and international unions would be accorded their jurisdictional rights in the newly organized fields.

Shelving of Trade Autonomy Policy. — However, when the matter came up in the American Federation of Labor convention in October, the final disposition of the federal labor unions in the mass-production industries disregarded the policy of trade autonomy and jurisdiction and substituted for it the principle of industrial unionism, so far as those industries are concerned. The committee report which formulated this change of policy was unanimously adopted by the convention. The committee declared that, while the duty still exists to "protect the jurisdictional rights of all trade unions organized on craft lines * * *, it is also realized that, in many of the industries in which thousands of workers are employed, a new condition exists requiring organization upon a different basis to be most effective."

Pending National or International Charters. — Accordingly, the executive council was directed to issue national or international charters covering the entire industry to workers in the automobile, aluminum and cement industries specifically, and "such other mass-production and miscellaneous industries as in judgment of the executive council may be necessary to meet the situation." These charters had not yet been issued at the end of 1934, but a national council with representative officers was functioning in the automobile industry as a coordinating medium, endeavoring to unify the many scattered organizations preparatory to assuming the responsibilities of a national body.

CLOTHING WORKERS AFFILIATION WITH A F OF L

Another important event of the year in labor circles was the affiliation of the Amalgamated Clothing Workers with the American Federation of Labor. The Amalgamated had existed independently since its inception in 1914, and was the largest and most powerful of the independent dual unions. An agreement between the Amalgamated Clothing Workers and the United Garment Workers was reached late in 1933 and approved by the 1933 convention which, by adjusting jurisdictions and dividing the work, made it possible for the American Federation of Labor to charter the Amalgamated Clothing Workers as an affiliate without an actual merging of the two unions.

The entire hat and millinery trade was brought under the jurisdiction of one international union instead of two as formerly, by the amalgamation into one body of the United Hatters and the Cloth Hat, Cap and Millinery Workers' International Union.

AMERICAN FEDERATION OF LABOR

Membership. — Average paid-up membership in the American Federation of Labor was 2,608,011 in 1934, as compared to 2,126,796 in 1933, and total membership which in 1933 was reported as 3,926,796, was 5,650,000 in 1934. Much of this growth is accounted for by the sweep of newly organized workers into the movement, and the addition of the Amalgamated Clothing Workers.

Gains in Affiliated Unions.—At the same time the renewed interest in organization following the enactment of the National Industrial Recovery Act resulted in increased membership in the established unions. In some instances this increase was spectacular. The greatest gains on the whole were in the smaller unions, such as the Jewelry Workers' International Union, which was represented in the 1933 convention of the American Federation of Labor by 8 votes, and by 49 votes in 1934; the Oil Field Workers' International Union, which jumped from 3 votes in 1933 to 125 in 1934, and the Tobacco Workers' International Union, whose vote more than tripled. Great gains were also reported by some of the largest unions, notably the International Ladies' Garment Workers' Union, which had 250 votes in 1933 and 1,500 in 1934. On the other hand some organizations showed a marked falling off in membership which had not been arrested at the time of the 1934 convention. Conspicuous among these are the actor's union and some of the building-trades organizations.

Executive Council.—An important move reflecting the increase in size and responsibilities of the American Federation of Labor was the action of the 1934 convention increasing the membership of its governing body, the executive council, from 11 to 18.

COMPANY UNIONS

Studies conducted by the National Industrial Conference Board indicate considerable increase in the number of so-called ''company unions'' in manufacturing industries. On the other hand, in the transportation industry popular elections to determine whether the company union or the standard railway union shall represent the workers have, in practically all cases, gone in favor of the standard union.

COMMERCIAL AGRICULTURE UNIONS

Other new fields besides those already discussed are being organized, some within and others outside the American Federation of Labor. Of considerable significance is the growing movement toward organization in A F of L directly affiliated unions of workers in commercial agriculture. Heretofore these workers, when organized at all, have tended to join the ''left wing'' movement rather than the American Federation of Labor. However, 40 local unions of agricultural workers were reported to the 1934 convention. These unions include farm laborers to some extent, but to a greater extent they represent workers employed in the packing and grading of fruits and vegetables, greenhouses and in landscape gardening.

INDEPENDENT NATIONAL UNIONS

New national unions not affiliated with the American Federation of Labor which have attained vitality and probable permanence during the year include the American Newspaper Guild, the Brotherhood of Utility Employees, and the United Shoe and Leather Workers' Union, which is an amalgamation of the Shoe Workers' Protective Union and scattered local groups.

LABOR LEGISLATION

By Irene Osgood Andrews

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Although only nine state legislatures met in regular session during 1934, 22 other states held special sessions; the amount of significant labor legislation enacted, therefore, was unusually large for an ''off-year.''

HOURS OF LABOR

The New York law limiting the hours of labor of females over 16 years of age in restaurants was extended to include all cities of 50,000 or more, instead of only cities of the first or second class, and hours for messenger boys under 21 were limited in all cities. The act establishing a five-day week on public works projects and an eight-hour day on highway and water-works construction was extended to March 1, 1935. Montana limited the hours of labor of retail and other store employes to eight per day and 48 per week in cities of 2,500 or over, but registered pharmacists were exempted.

CHILD LABOR

The Federal Constitutional Amendment permitting the regulation of child labor was ratified in Iowa and West Virginia, making a total of 20 states that have now taken this action. New York prohibited the employment of children under 16 in building construction and also amended the school attendance laws. In Massachusetts several amendments to the child labor law were made, including one which construes the illegal employment of children as serious and wilful misconduct under the law providing double compensation for accidents to illegally employed children.

SAFETY AND HEALTH

Coal miners were given additional protection in Kentucky; boiler inspection was provided for in Mississippi; the storage and transportation of explosives was safeguarded in Puerto Rico. In Massachusetts, workrooms must be heated during the winter. New York strengthened the safeguards for window cleaners; the power of the Industrial Board over the building industry was extended, and the law regulating the manufacture of bedding was strengthened and broadened. In Louisiana, an important measure governing the dangerous work in caissons was passed which regulates hours of labor, rest periods and the air decompression rate.

EMPLOYMENT AGENCIES

The provisions of the Federal Wagner-Peyser Act providing state subsidies were accepted in 1934 by Iowa, Kentucky, New Jersey, New Mexico and West Virginia, and by Louisiana which established a new employment service system under the department of labor. The private employment agency law in Iowa was strengthened especially with reference to licenses and fees charged for services.

ADMINISTRATION

In New Jersey a division of wage collection was created and in Massachusetts a division of occupational hygiene was set up, both within the respective departments of labor. Kentucky reorganized its department of labor, transferring the Children's Bureau to the Department of Public Welfare and leaving the Accident Compensation Board as an independent body. In New York, among other amendments to the labor law, the penalty for a first offense in case of violation was raised from $20 to $50.

COLLECTIVE BARGAINING

The issuance of injunctions in labor disputes was regulated in Massachusetts, Washington, and Louisiana. In the latter state, coercive employment contracts, popularly known as "yellow dog" contracts, were also prohibited. Massachusetts provided that no order in a labor dispute shall be issued unless the opposite party has been notified of the time and place of the hearing. In Massachusetts also armed guards may not be employed in a strike and licensed policemen must have been employed at least two months before the strike.

MINIMUM WAGES AND HOME WORK

The original minimum wage law in Massachusetts enacted in 1912, and providing only for voluntary enforcement was amended to make enforcement compulsory. This law now conforms to the standard minimum wage law recently enacted in eight states and making a total of 16 states with mandatory acts. A New York homework law required homework certificates for all such workers to be issued by the Department of Labor, required a minimum fee of $25 from employers, and extended the provisions of the act to all residences except one- or two-family houses in towns, villages and cities of less than 200,000 inhabitants.

PROTECTION OF WAGES AND EMPLOYMENT

Considerable legislation, much of minor importance, was enacted in 1934, relating to wage rates, liens, garnishment, and time of payment. New York strengthened its law in regard to time of payment, extended to all public construction works contracts the provision that advertised specifications must include a minimum hourly wage rate for laborers, and provided that wage assignments must be in writing and must be at least $12 a week with a limit of 10% of the assignors wage. New York also added a new section to its penal law prohibiting wage refunds on personal service contracts. It penalizes even the threat of dismissal and the receipt of anything of value from the employed, whenever the wage rate is specified in the contract. This is a direct attack on the increasingly common practice known as the "kickback."

In Washington, the coercion of employees in the purchase of meals and lodging was covered in the wage-payment law; in Rhode Island, a bond for employe protection must be provided by contractors on road and bridge work involving more than $500, and in Montana wages of $10 or less were exempted from attachment. The wage exemption law and the law requiring contractor's bonds on public works were strengthened in Massachusetts.

In several states, including Louisiana, Kentucky, New Jersey and New York, mechanics lien laws were enlarged or amplified to provide greater security for laborers. Action giving preference for local labor and domestic materials was taken in Iowa, Louisiana and New Jersey, and in New Mexico contracts for public printing must be awarded to certain state residents. Laws and amendments affecting the examination and licensing of employes, especially barbers, were enacted in Iowa, Kentucky, Massachusetts, Rhode Island, Virginia, and West Virginia.

MISCELLANEOUS

An unusual act was passed in Louisiana prohibiting employes from contracting to engage in any competitive business when leaving work, and the state courts may not issue injunctions to enforce such contracts. An interstate compact to establish uniform conditions of employment, with special reference to minimum wages, was approved in Massachusetts. Massachusetts also authorized or continued, five investigating commissions covering interstate compacts, unemployment insurance, discrimination against employes because of age, licensing of contractors and builders, and the occupational disease "silicosis." Cooperation with the National Industry Recovery Act was the subject of legislation in Colorado, Illinois, Mississippi, New Jersey, New Mexico, New York, South Carolina, Washington and West Virginia.

(For summary of 1934 enactments on social insurance, see p. 618.)

LABOR IN POLITICS

By Mollie Ray Carroll

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SECTION 7A OF NIRA

Text.—Organized labor's political and economic activities this year have been substantially modified by Section 7(a) of the National Industrial Recovery Act of June 16, 1933, which reads:

Sec. 7(a) Every code of fair competition, agreement, and license, approved, prescribed, or issued under this title shall contain the following conditions: (1) that employees have the right to organize and bargain collectively through representation of their own choosing, and shall be free from the interference, restraint, or coercion of employers of labor, or their agents, in the designation of such representatives or in self-organization or in other concerted activities for the purpose of collective bargaining or other mutual aid or protection; (2) that no employee and no one seeking employment shall be required as a condition of employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of his own choosing.

Labor Interpretation.—The American Federation of Labor has taken Section 7(a) seriously as evidence of government recognition of the right of workers to organize correlative with the right of employers to form trade associations under the codes. It declares that Section 7(a) provides "constitutional government for industry" thereby establishing the legal right of workers to join the union and to bargain collectively with the employer. It approves of the machinery of conference between organized labor and the employer and of a court of appeal which are part of the program of compliance with the National Recovery Act. In fact the American Federation of Labor considers Section 7(a) to be the heart of the Recovery Act, believing that it points the way for both recovery and reform because it introduces balance in the decisions which determine industrial government and distribution of income.

This being its concept of Section 7(a), the American Federation of Labor has seen its first task to be organization to the end of fulfilling labor's obligation to the National Recovery Act by assembling, coordinating and voicing the workers' experiences and opinions pertinent to the problems of the codes. If the National Recovery Act is to profit from labor's point of view, it is necessary to present as wide a representation of workers' opinion as possible. The logic of extensive increase in membership is clear.

AMERICAN FEDERATION OF LABOR AND NRA

Membership. — The numerical increase in American Federation membership is hard to determine. The Report of the Executive Council to the 54th Annual Convention in San Francisco on October 1, 1934, claimed 2,600,000 members. This is an increase of nearly 500,000 over 1933, but a gain of less than 75,000 over

1932 and a loss of nearly 300,000 over 1931. The Convention figures are undoubtedly understatements since reports to the Convention generally include only dues-paying members, upon whom the per capita tax is paid. The number of members out of work is hard to estimate, since the policies of National or International Unions concerning these members differ widely. It is certain that the year has brought greater union strength than the official figures indicate.

Union Organization. — The effort to organize in order to present the collective desires and needs of the workers under the terms of Section 7(a) probably represents the determining factor in the decision of the San Francisco Convention to organize industrial unions in the automotive, rubber, cement, aluminum and other mass production industries. For some years there has been pressure from certain quarters in the Federation toward industrial unionism. This has been checkmated, however, by the craft union interests which have hitherto been strong enough to prevent a Convention decision favorable to the inclusion of industrial unionism. Within the American Federation of Labor, to be sure, the council plan of organization has moved in the direction of industrial organization but has retained the old craft union units. The need for organizing unions in large industries where craft lines have broken down has finally been crystallized into policy through the effort to comply with Section 7(a).

Cooperation with Codes.—The program of compliance with the National Recovery Act has not stopped at union organization. Unions within the American Federation of Labor have sought to present their case in preparation of codes and to write their needs into those codes. Union officials have also sought to cooperate in good faith with the varius labor boards. They have prepared briefs for use in drafting the codes. They have presented discrimination cases to regional, industrial and national labor bodies.

Political Propaganda.—Meanwhile certain employers' groups have also attempted to resuscitate or create inside or company unions with the expectation that they would fulfill the terms of Section 7(a). In addition, the general labor unrest has been hospitable to the development of left wing activities in the groups organized for political action and splintered into a variety of parties or propagandist agencies. As usual, it is difficult to estimate the strength of this revolutionary political propaganda among the working groups. In some communities membership claims are high; in others, a skeleton organization apparently exerts more power than in places claiming a much larger membership. In certain areas the technique of organization and propaganda are excellent. Everywhere these revolutionary political organizations are considered by the American Federation of Labor as completely at methods and, indeed, destructive of variance with its own philosophy and its affiliated groups.

CONFLICT OVER COLLECTIVE BARGAINING

The experience of the American Federation of Labor under the codes has been less fortunate than anticipated. The movement to expand company unionism, mentioned above has been considered by labor as jeopardizing true collective bargaining. Specifically, the question of trade unionism versus company unionism has come to an issue in the discussion of so-called majority rule. Two cases illustrate the issue. In the automobile industry a plan of proportional representation was authorized. Later in the Budd Motor case the company union, although not strong enough to dominate the election, applied to the Automobile Labor Board for recognition as the collective bargaining agency for the workers. Decision in the matter has not yet been rendered but previous action of the Automobile Labor Board would seem to indicate possibility of judgment favorable to the Budd Motor Company union contention.

The issue of majority representation has been carried to the National Labor Relations Board in the Houde case. The original complaint against the

Houde Engineering Corporation was that the firm repeatedly bargained and dealt with the company union only, refusing to recognize the trade union. The Labor Board instructed the firm to comply with the majority representation rule. Through this order the Labor Board upheld the principle of majority representation. The decision covered the obligation of the employer to meet with the union to discuss wages, hours and basic working conditions, to present counter-proposals if he could not accept those of the employees' representatives, and to see that reasonable effort was made to reach an agreement with the employees' representatives concerning those wages, hours and basic working conditions. Nevertheless the firm refused to bargain with the American Federation of Labor union. Consequently use of the Blue Eagle was forbidden the firm. The Houde company threatened to carry the matter to a higher court. Then the National Labor Board obtained an injunction against the Houde company to prevent continued violation of its orders. The Board also carried the case to the Federal Department of Justice thereby bringing for the first time the collective bargaining provision of the National Industry Recovery Act and the interpretation of majority representation to the test of court decision.

Although the American Federation of Labor has interpreted Section 7 (a) as implying organized labor's participation in drafting of the codes, in actuality the original drafts of codes have generally been made without consulting union representatives. This has meant that if organized labor wishes to modify a code it must do so by presenting an amendment when the code is offered for acceptance or rejection.

WORKERS' EDUCATION

The effort to retain the gains to organized labor of Section 7(a) through expansion of union membership has given new impetus to Federation activity in workers' education stimulated or, rather, encouraged by the Government's Emergency Education Program. Less materially assisted by the Emergency Education Program than expected, the American Federation of Labor is nevertheless placing fresh emphasis upon self-education and its own Workers Education Bureau. The renewed interest is shown in widespread stimulation of trade union classes.

POLITICAL QUESTIONNAIRE

The new dignity of labor organizations under the National Recovery Act has led to altered tactics in the American Federation of Labor's program of non-partisan political activity. Before the November elections, instead of the time honored attempt to follow the *ex post facto* policy of rewarding labor's political friends and punishing its enemies, the Federation took the more positive stand of sending out to candidates the following questionnaire:

Q.—Will you support social justice legislation providing for old age pensions, unemployment insurance, work security and health protection?

Q.—Will you vote for a measure providing that all codes under the National Recovery Act should contain a thirty hour week and a six hour day?

Q.—Will you support legislation similar to the Wagner-Lewis bill introduced in the last session of Congress providing for unemployment insurance?

Q.—Will you support legislation similar to the Wagner-Connery Labor Dispute Bill with amendments drafted and supported by the American Federation of Labor?

Q.—Will you support legislation providing adequate appropriations necessary for a public works program as a partial remedy for unemployment and for relief of dependent unemployed workers and their families?

The significance of this questionnaire lies in the fact that the Federation has sought to commit candidates in advance rather than to recommend them to its membership on the basis of vague promises or past performance in political life. It has demanded categorical answers, *Yes* or *No* to these specific questions concerning issues of vital importance to labor. To be sure, it has for years followed this policy with reference to inclusion of its demands in party platforms. Writing generalities into party platforms, however, is quite different from exacting specific promises from candidates and putting them on record. The success of this policy and the extent to which candidates have answered the questionnaire have not yet been determined at the Federation headquarters, if, indeed, they can be calculated. The use of this device, however, means added support to the non-partisan political policy.

GAINS FOR LABOR

In spite of labor's disappointment arising out of actual experience with Section 7(a) and present tendencies toward its negation or its actual elimination from the National Recovery Act, Section 7(a) represents distinct gains somewhat comparable to recognition of the rights of labor to bargain collectively under the British Trades Disputes Act. It introduces the concept of collective bargaining into the realms of governmental method and legally accepted practice. In place of denial of the right of labor and employers to bargain collectively it provides machinery for legalizing agreements on industrial policies affecting labor reached by those with authority and competence to decide upon the critical issues. It justifies the non-partisan political policy consistently adhered to by the American Federation of Labor, the policy termed ''voluntarism'' by the late Samuel Gompers. From this standpoint, in spite of its present defects and its uncertainty of retention in the National Recovery Act, Section 7(a) probably represents a permanent addition to American concept of the relationship and respective spheres of economic method and political action in the field of labor problems.

MEDIATION AND ARBITRATION IN INDUSTRIAL DISPUTES

By Isador Lubin

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LABOR BOARDS UNDER THE NATIONAL RECOVERY PROGRAM

National Labor Board.—The organization of an extensive machinery under Federal auspices for the settlement of industrial disputes, which had its beginning in the latter part of 1933, was greatly expanded in 1934, and certain important changes were made in existing agencies. The most important change was the superseding on July 9, of the National Labor Board by the National Labor Relations Board. The National Labor Board was established in August, 1933, under the chairmanship of Senator Robert F. Wagner, to act in disputes arising under the National Industrial Recovery Act. Preliminary figures show that from the inception of the National Labor Board to July 1, 1934, over 2,000,000 workers were directly affected by cases handled by the Board itself and its 19 regional boards established throughout the country, and that, of this total number, 1,800,000 persons were either returned to work, kept at work, or had their disputes adjusted. Of 4,277 cases handled, 3,532 or 83 per cent, were settled by the boards. Settlements affected by agreement represent approximately two-thirds of the settlements. Cases pending on July 1 numbered 416. The primary cause of complaint in 2,741 cases or 64 per cent of the total of 4,277 cases handled was alleged violation of section 7 (a) of the National Industrial Recovery Act dealing with labor's right to collective bargaining.

The National Labor Relations Board of three members, was established by Executive order of June 29, 1934, in accordance with the authority vested in the President under title 1 of the National Industrial Recovery Act and under joint Congressional resolution No. 44 approved June 19, 1934. The original membership was Lloyd Garrison, Chairman; Harry A. Millis, and Edwin S. Smith. The Board's decisions were not subject to executive review, and its work was to be confined to disputes involving the right of labor to collective bargaining, the holding of elections for labor representation, voluntary arbitration, and investigation of complaints of discriminatory practices affecting labor. It was provided that decisions of the Board should be transmitted to the President through the Secretary of Labor.

Houde Case.—Of the many cases passed upon by the National Labor Relations Board during the first six months of its existence, the case to attract most attention was the one involving the Houde Engineering Corporation and its employees. In this case, the complaint of the Union was that, while it had been chosen as the collective agency by the majority of the employees, the company insisted that under Section 7 (a) of the Recovery Act, it was obligated to bargain collectively not only with the union, but with the organization voted for by the minority of employees. The Board decided that the majority properly represented all employees. The case was pending in court at the end of the year.

Special Boards. — In addition to the National Labor Board and its successor, the National Industrial Relations Board, a number of special boards were set up from time to time to deal with the problems of particular industries, such, for instance, as the National Steel Labor Relations Board, the Automobile Labor Relations Board, the Textile Relations Board and the National Longshoremen's Board. The steel and automobile boards were primarily concerned with the attempted settlement of disputes involving collective bargaining in industries which had been little organized prior to the NRA. At the end of the year, these boards were still struggling with many difficult problems. The Textile Labor Relations Board, was created in September, as one of the results of the great textile strike of that month. The National Longshoremen's Board was created by the President to mediate in the Pacific Coast longshore strike, which began in the spring of 1934, and continued for several months. The Board was finally successful in affecting an adjustment. A Labor Policy Board for the petroleum industry was set up by the Secretary of the Interior, to deal with the special problems arising under the Petroleum Code. One of its first assignments was to study the problem of proper differentials between wages for skilled and unskilled labor. Another important special board, known as the Board of Labor Review, was established to deal with labor controversies or problems arising under contracts financed by the PWA.

MEDIATION OF RAILROAD DISPUTES

A special agency for the mediation of railroad labor disputes, the United States Board of Mediation, had been created by the Railroad Labor Act of 1926. It continued to function, until superseded in June, 1934, by a new board of somewhat broader jurisdiction, known as the National Mediation Board. This Board was created by Public Act No. 442, 73rd Congress, approved June 21, 1934. By that act, the Board is directed to carry out the following provisions of the Act: (1) To avoid any interruption to commerce or to the operation of any carrier engaged therein; (2) to forbid any limitation upon the freedom of association among employees or any denial, as a condition of employment or otherwise of the right of employees to join a labor organization; (3) to provide for the complete independence of carriers and of employees in the matter of self-organization to carry out the provisions of this act; (4) to provide for the prompt and orderly settlement of all disputes concerning rates of pay, rules or working conditions; (5) to provide for the prompt and orderly settlement of all disputes growing out of grievances or out of the interpretation or application of agreements covering rates of pay, rules or working conditions. The National Mediation Board cooperates in the adjustment of disputes with the National Railroad Adjustment Board composed of 18 representatives of the carriers and 18 representatives of employees, also created by Public Act No. 442.

U. S. CONCILIATION SERVICE

The Conciliation Service of the Department of Labor, working in close association with the various special mediation boards, continued to be very active in 1934, as a result of the many labor controversies. During the fiscal year ended June 30, 1934, 1,163 cases of trade disputes, strikes, threatened strikes, and lockouts were handled by the Conciliation Service. Of this number, which included 32 cases as pending at the close of the fiscal year, 678 were satisfactorily adjusted. These cases came from 45 states and the District of Columbia, and involved directly and indirectly 821,801 employees. Since the creation of the Department of Labor in 1913, the Conciliation Service has handled 13,153 labor disputes involving 15,087,168 employees.

INDUSTRIAL ARBITRATION

Printing trades.—Of the comparatively few cases of industrial arbitration, other than those under the various Federal agencies referred to above, the most important were in the printing trades and in the street railway industry. Six disputes in the printing industry were submitted to arbitration during the year. These involved typographical workers of Cleveland, Syracuse, Kansas City, Wichita, and Manitowoc (Wis.). In all of these cases the printers were awarded an increase in wages. Arbitrators in the case of the newswriters on the *Milwaukee Leader* awarded a 5-day, 30-hour week and an increase in wage rates.

Street Railways.—Four instances of arbitration in the street-railway industry during 1934, came to the attention of the Bureau of Labor Statistics. These involved the street-railway companies and their employees in Cleveland, Portland (Ore.), Cincinnati, and the State of Connecticut. In all of these cases the employees were awarded an increase in wages.

EMPLOYMENT CONDITIONS

By Royal E. Montgomery

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EMPLOYMENT TRENDS

Manufacturing and Mining.—The reemployment movement immediately following the inauguration of the Recovery Program had largely spent itself by the end of 1933, and with production failing to increase greatly during 1934, employment gains were moderate. During the first five months of 1934 the output of manufactures and minerals increased from 78 to 83 per cent of the 1923-25 average, then experienced a recession that brought the Federal Reserve Board's Index at the end of the third quarter virtually back to the January figure. Factory employment, which in March, 1933 had been only 59 per cent of the 1923-25 average, rose to 74 by the end of 1933 and to 82 in May, 1934. A recession began in June, however, and by the end of the third quarter total factory employment was only about eight per cent greater than it had been at the beginning of the year. Between August and September, 1934, the number of wage-earners in manufacturing declined, according to the reports of the U. S. Bureau of Labor Statistics, by 312,000, as compared with a 299,000 gain between August and September of 1933, and in September, 1934, 5.2 per cent fewer persons were on factory payrolls than had been during the corresponding month of the preceding year. The number of wage-earners in the 25 manufacturing industries reporting to the National Industrial Conference Board was, however, 1.5 per cent greater in October than in September. Employment in anthracite coal mining in September was .2 of one per cent greater than during the same month of 1933 and 56.9 per cent of the 1929 average in bituminous coal mining it was 8.9 per cent greater than a year before and 78.2 per cent of the 1929 average, and in metalliferous mining 8.7 per cent greater than in September, 1933, but only 42.3 per cent of the 1929 average.

As was true in 1933, the low spots of the depression continued to be concentrated in the capital-goods industries and in certain consumer-goods industries which make luxury products. In some of the industries coming within these categories, employment gains in 1934 were, however, considerably greater than in manufacturing as a whole, as is indicated by the following table.

EMPLOYMENT TRENDS

	Index of employment, August, 1934 (1923-25 average—100)	Percentage change, August, 1933 to August, 1934
Total manufacturing	79.5	+4.1
Iron and steel	68.6	+.3
Lumber and its products	49.0	−2.8
Machinery	78.6	+21.9
Agricultural implements	66.8	+53.6
Electrical equipment	65.3	+18.7
Stone, clay, glass products	53.1	+.6
Automobiles	92.5	+34.6

Building Construction.—The 1933 recovery in the building trades, initiated first by the increase in privately-financed projects and then by publicly-financed construction, had been slight in comparison with the unusually severe depression which the industry had undergone, and such gains as took place in 1934 were largely a consequence of Government-financed projects. The value of residential contracts let in March, 1934, was greater than during any month of 1933, but in September the value of residential contracts awarded was about 15 per cent less than during the corresponding month of 1933. The public works program had meanwhile got under way, after a very slow start in 1933, and in August was employing some 450,000 men on Federal projects, although only 34,504 of this number were employed in building construction. Total contracts awarded in all classes of construction were 40 per cent of the 1923-25 average in January, 1934, 31 per cent in June, and 30 per cent in September, as compared with the 1929 average of 117 per cent, the 1932 average of 28 per cent, and the 1933 average of 25 per cent. In September total employment in building construction was estimated by the U. S. Bureau of Labor Statistics to be 9.3 per cent less than during the corresponding month of 1933.

Railroads.—The slight increase in employment that occurred in 1933, in consequence of the revival of railroad traffic after the March, 1933 low point, was barely maintained during 1934. In September a fraction of one per cent fewer persons were employed on Class I railroads than had been in September, 1933. The index of employment for September, 1934, was 57.3 as compared with the 1923-25 average of 100. Employment was 47.5 per cent below that of September, 1929, and 2.7 per cent above that of September, 1932.

Farms.—The total farm population on Jan. 1, 1934 was estimated by the Bureau of Agricultural Economics to be 32,506,000, as compared with 32,242,000 on Jan. 1, 1933. The 1934 figure established a new all-time peak for the number of persons living on farms, but the net 1933 gain of 267,-

000 was only about one-fourth as great as that of the preceding year and was the smallest increase recorded since 1930, when the depression started a series of net gains in farm population. Migration from urban places to the farms was the smallest since 1921, only 951,000 persons moving from villages, towns, and cities to the farms, as compared with 1,544,000 during 1932. The movement from farms to cities, on the other hand, increased slightly during 1933, the cityward movement being 1,178,000 as compared with 1,011,000 in 1932. In other words, the farmward movement exceeded the cityward movement by 533,000 in 1932; the cityward movement exceeded the farmward in 1933 by 227,000. While this net migration away from farms is not large, it is highly significant if it represents even a partial return to the large net-urbanward flow of population that occurred every year from 1920 through 1929. As the following tabular summary shows, the net increase of 267,000 in farm population was due to the fact that births exceeded deaths by 494,000:

	1932	1933	Change between 1932 and 1933
Number going to farms	1,544,000	951,000	−593,000
Number going to cities	1,011,000	1,178,000	−167,000
Natural increase in population	468,000	494,000	+26,000
Net change in rural population	1,001,000	267,000	−734,000

While estimates of changes in the farm population in 1934 will not be available until the spring of 1935, such scattering evidence as is available points to a continuance of the 1933 trends rather than to a reversion to those of 1932.

Public Utilities, Trade, and Hotels.—Employment declined slowly in these, the steadier branches of business, during the depression, and reached its low point in 1933. In all but one of them fairly substantial gains were registered during 1934. The following table shows the percentage by which employment was below the 1929 average during the depression years. The 1934 figures are based upon an average of the first eight months.

	Percentage by which employment was below 1929 average in:			
	1931	1932	1933	1934
Telephone and telegraph	13.4	20.9	29.6	29.6
Power and light	4.4	17.0	21.2	19.8
Electric railroads and motor-bus	15.3	24.5	30.0	27.9
Wholesale trade	13.4	21.8	22.1	16.3
Retail trade	10.6	19.1	18.3	14.3
Hotels	8.3	21.0	25.1	16.5

PART-TIME EMPLOYMENT

Reliable data on the percentage of workers employed part time during 1934 are not available, but inferences can be drawn from an earlier survey and from the trend of employment, man-hours worked, and the length of the average working week. In March, 1932, a survey by the U. S. Bureau of Labor Statistics showed 56.1 per cent of all workers and 63 per cent of workers in manufacturing to be on part time. As was indicated in THE AMERICAN YEAR BOOK for 1933 hours declined only 6.1 per cent between February, 1932 and February, 1933, and then increased somewhat between February and August of that year. The situation when the codes began to be effective was probably about what it had been a year earlier. Between September, 1933 and September, 1934, average hours in manufacturing declined by 6.7 per cent, but total employment was also less by 5.2 per cent than it had been a year earlier. Between September and October, 1934, the number of wage-earners employed in manufacturing industries reporting to the National Industrial Conference Board increased by 1.5 per cent, total man-hours worked increased by 3.5 per cent, and average hours per week rose from 33.3 to 34.0. These facts indicate that the work-spreading movement did not again become accelerated, although the codes and blanket Re-Employment Agreement stopped the tendency manifest in the first half of 1933 to increase man-hours by lengthening the working week instead of by employing more men. Probably the percentage of workers on part time was not greatly different during the closing months of 1934 from what it had been a year earlier. The American Federation of Labor's statistics show that 23 per cent of union members were working part time in October, 1934.

VOLUME OF UNEMPLOYMENT

Trends and Comparisons.—American unemployment statistics remain in a highly unsatisfactory state, and estimates of the total volume have to be constructed from information made available by the 1930 and 1931 census figures, from indexes of employment and calculations as to growth of the total labor supply, and from various scattering sources of information. The American Federation of Labor estimates that 10,671,000 persons were unemployed in October, 1934, as compared with 10,950,000 in September, 10,122,000 in October, 1933, 10,108,000 in September, 1933, and 13,689,000 in March, 1933. The Federation's September estimates showed an increase in unemployment over that of the corresponding month of the preceding year for the first time since the President's Reemployment Program was started in the summer of 1933, and this increase over the level of the corresponding month of the preceding year continued during October. From this A. F. of L. estimate should be deducted the 2,262,000 persons employed in the various types of Government emergency work in October. Allowance should also be made for the large number of persons who have become unemployable during the depression and for the slowing up of the rate of increase in total labor supply caused by the number of persons returning (prior to 1933) to farming during the depression. Probably the Federation's estimate of 10,950,000 should be reduced to about 8,600,000. The National Industrial Conference Board estimates that the October, 1934, unemployment was 9,604,000, as compared with 9,949,000 in September and 9,799,000 in August. The volume of unemployment continues to be greatest in the durable goods industries. Estimates of the Cleveland Trust Company show that in August, 1934 about two-fifths of the workers were still unemployed in the durable goods industries and only about one-tenth in the consumption goods industries.

Trade Union Returns. — American Federation of Labor returns show the following rates of unemployment among trade union members:

TRADE UNION UNEMPLOYMENT PERCENTAGE

	All trades	Building	Metal	Printing	Other
1929 (average)	12	25	7	4	8
1930 (average)	21	40	20	7	14
1931 (average)	26	52	30	13	17
1932 (average)	32	64	42	19	20
1933 (average)	31	67	43	22	20
March, 1933	34	72	49	22	22
September, 1933	29	63	39	22	18
March, 1934	25	55	30	18	16
September, 1934	25	58	25	17	17
October, 1934	24	56	27	17	16
November, 1934	25	56	28	16	18

EFFORTS TO REDUCE OR RELIEVE UNEMPLOYMENT

National Recovery Administration.—With virtual completion of the process of bringing the various industries under codes, and hence under the prevailing 40-hour limitation incorporated in them, the National Recovery Administration began to undergo organizational changes. On Oct. 15, 1934, the National Industrial Recovery Board took over the duties of the Administrator. The Industrial Emergency Committee, created June 30, 1934, was reorganized and, by executive order of Sept. 27, was given duties in connection with the coordination of relief measures, public works, labor disputes, and the determination of administrative policies in connection with the National Industrial Recovery Act. As has already been pointed out, the employment benefits attributable to the prevailing code limitations upon hours had been largely realized by the end of 1933, and inevitably the pressure upon the Recovery Administration to adopt a policy of more drastic limitation of hours in the codes coming up for renewal became stronger during the latter half of 1934.

Federal Emergency Relief. — Between creation of the Federal Emergency Relief Administration in May, 1933, and Nov. 1, 1934, $1,337,488,000 was expended, 89.2 per cent of this amount being for general relief purposes, 2.4 per cent for transient relief, 0.1 per cent for self-help organizations, 2.6 per cent for educational programs, and 5.7 per cent for commodities distributed chiefly through the Surplus Relief Corporation. After November, 1933, the policy of matching one-third of the expenditures of the states or their sub-divisions was abandoned and all grants were made on the basis of need. The increasing importance of the Federal Government as a source of relief expenditures is indicated by the fact that, according to a study of the National Industrial Conference Board, the Federal Government's contribution to the nation's relief activities (exclusive of the Civilian Conservation Corps and the Civil Works Administration) increased from 58.4 per cent to 73.9 per cent of the total between the first quarter of 1933 and the second quarter of 1934. The Federal Relief Administrator is authorized to take over relief administration in the states, in the interest of efficiency, and this power has been exercised, first in Kentucky and Georgia, and subsequently in Oklahoma, North Dakota, and Massachusetts. Various programs have been formulated and put into effect, including transient relief to persons having no permanent residence in any state, distribution of commodities through the Federal Surplus Relief Corporation, rural rehabilitation, drought relief, work relief, emergency education work, and aid to self-help organizations. The Civil Works Administration, inaugurated late in 1933, was discontinued in May, 1934, and the Federal Emergency Relief Administration instituted a program of work relief to be carried out through state administrations. The number of employees on the emergency relief work program increased from less than 23,000 in March to 1,387,000 during the last week of September. The Administrator reported that 4,161,006 families were on relief in the United States in October, 1934, as compared with 3,010,516 a year earlier. Preliminary reports have indicated an increase of 60,000 families to the rolls during November. Relief expenditures during November were between $125,000,000 and $130,000,000, and the Administrator has estimated that relief funds now available, including the Administration's share of the drought relief appropriation, will last until the middle of March, 1935. The Civilian Conservation Corps, which is separately financed, provided work for 363,000 persons in October.

Public Works Administration. — The Public Works program got under way slowly during 1933, but proceeded more rapidly in 1934. The U. S. Bureau of Labor Statistics reports show that an average of more than 600,000 employees were working at the site of Public Works Administration projects during the months following May, although the number had dropped to 508,000 by October. Contracts awarded for construction projects between August, 1933 and July, 1934, totaled nearly $1,500,000, and payrolls about $200,000,000. More than 1,100,00 man-months of labor was estimated by the Bureau of Labor Statistics to have been created by July in factories manufacturing the materials for which orders had been placed. Projects financed out of the Public Works fund are of two types: the Federal, carried on by allotments made to the various Federal departments and including such types of construction as post-office buildings, river and harbor work, and reclamation projects; and non-Federal, financed by allotments made to a state or political subdivision thereof on the basis of 70-per cent loan and 30-per cent outright grant, and including such work as road and street paving, waterworks, school buildings, and slum clearance.

Permanent Changes. — The year 1934 was characterized by the growing assumption that the Federal Government must take the initiative in making permanent provision for dealing with unemployment. A special committee appointed by the President and the National Conference on Economic Security prepared recommendations for a national system of unemployment insurance, to be worked out on a combined Federal-state basis, and recommendations to Congress after its convening in 1935 were promised. The Wisconsin unemployment insurance system became operative so far as payment of contributions is concerned on July 1, and the payment of benefits will begin after July 1, 1935. The United States Employment Service, created by the Act of June 6, 1933, became operative and set in motion the machinery to bring the 23 state services into a single Federal-state system and to extend the plan to other states. During the twelve months from July, 1933, to July, 1934, the newly-organized placement machinery registered and classified 12,634,974 persons and placed 6,951,505 in private or Government jobs. By June 30, 1934, the total number of offices maintained by the service was 829, of which 648 were Federal and 181 state.

CHILD LABOR

BY COURTENAY DINWIDDIE

GENERAL SECRETARY, NATIONAL CHILD LABOR COMMITTEE

CHILD LABOR UNDER THE NRA

National Standards.—Before the adoption of the National Industrial Recovery Act, every inadequacy in state labor legislation served as the excuse for the exploitation of children and young girls under depression conditions. ''Fly-by-night'' sweatshops hired ''learners'' for little or nothing, and moved frequently across state lines, evading state labor regulations. Under the industrial codes, standards for child employment higher than those of most state laws were temporarily established on a nationwide basis, resulting in practically the total elimination of children under 16, probably to the number of 100,000, from many major industries. In spite of scant provision in many industries for code enforcement, the child labor provisions appeared to be well observed, few reported violations involving the use of underage children.

Minimum Age for Employment under Codes.—More than 500 codes had been approved by November, 1934, all of which established a general age minimum at least as high as 16 years for employment, and only 13 of which contained exemptions. These 13 included (1) a group of retail trades in which children 14 and 15 years of age were permitted to work three hours a day so as not to interfere with school attendance; (2) the motion picture, radio broadcasting and legitimate theatre industries in which children of any age were allowed to engage professionally; (3) the newspaper and periodical publishing industries. The newspaper publishing code allowed children of any age to sell or deliver newspapers except that children under 16 were prohibited from night selling. The graphic arts code (periodical publishing section) allowed children of any age to deliver periodicals over fixed routes but prohibited children under 14 from selling. In spite of the expressed dissatisfaction of President Roosevelt with the child labor provisions of the newspaper and periodical publishing codes, changes proposed by the NRA at a publishers hearing in June had not been made up to November, 1934.

The great majority of codes in addition to the 16-year age minimum for general employment, established a higher age limit, usually 18 years, for operations or occupations hazardous in nature or dangerous to health, their determination being left in many cases to the code authority. In certain especially hazardous occupations, the 18-year age minimum was extended to all employment. A group of 78 codes with a 16-year age minimum for all employment failed to place any special restriction on hazardous work. Among these were some industries far too hazardous for minors, notably the iron and steel industry.

There remained whole sectors of non-industrial child employment not covered by any code. In domestic service alone there were about 40,000 children under 16 employed in 1930.

Industrial Homework.—One of the most fertile fields for child exploitation which remained was industrial homework, in spite of the fact that many codes, including those for most of the garment industries and many paper products, prohibit home work altogether. In industries where homework was allowed to continue under the codes, however, earnings of home workers were usually only a fraction of the minimum wage established for factory workers and, consequently, working hours were endless and even young children were obliged to help. In short, the standards set up by the codes broke down wherever homework was tolerated.

INDUSTRIALIZED AGRICULTURE

Wretchedly poor wages and child labor have been twin evils in the cultivation of sugar beets for many years. The approval of the Jones-Costigan Act by the President in May established sugar as a basic commodity, subject to regulation through agricultural benefit agreements, and specifically provided for clauses in such agreements to limit or regulate child labor in the beet fields and to establish minimum wages for beet field laborers. Although no agreements were signed in time to affect conditions materially during 1934, two regional hearings were held during September and provisions adopted which would set a minimum age of 14 years and restrict working hours for children between 14 and 16 to eight hours a day (neither restriction applying to growers' children working on their own fields), and establish minimum wages for 1935 and 1936. Thus the beet fields appeared likely to be the first area in which national control will be invoked to eliminate the serious exploitation of young children in industrialized agriculture.

STATE LEGISLATION

Changes.—During 1934, only nine states held regular sessions of the Legislature and few important changes were made in child labor laws.

Kentucky enacted a new school code under which children under 16 are not allowed to leave school for work except that in cases of need, work permits may be issued to children of 14 years who have completed the eighth grade, or 15 years who have completed the seventh grade.

Massachusetts, in addition to enacting a mandatory minimum wage law, passed an amendment to the Workmen's Compensation Law the effect of which is to entitle minors injured while illegally employed to receive double compensation.

New York revised its Tenement Homework Law, enacted two bills extending the list of hazardous occupations prohibited for children, and strengthened its continuation school provisions for temporarily employed minors.

South Carolina enacted a law prohibiting Sunday labor for women and children.

Defeated Bills.—Among defeated measures were bills to raise the minimum age for employment to 16 years in Massachusetts, New York, Rhode Island and (for textile mill workers only) South Carolina. South Carolina also defeated a bill to raise the age limit for compulsory school attendance from 14 to 16 years with exemption upon completion of the elementary course, and to require attendance for the entire school term. Bills reducing maximum working hours were lost in Kentucky, Rhode Island and South Carolina.

FEDERAL CHILD LABOR AMENDMENT

Ratifications.—Efforts were continued to secure the ratification of the pending Child Labor Amendment to the Federal Constitution, in order to provide a means for the permanent control of child labor on a nationwide basis after the expiration of the codes. Five additional states ratified it during December, 1933, bringing the total number of ratifications up to twenty: Arizona, Arkansas, California, Colorado, Illinois, Iowa, Maine, Michigan, Minnesota, Montana, New Hampshire, New Jersey, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Washington, Wisconsin, West Virginia. A total of 36 ratifications is needed for the adoption of the Amendment.

Need for Ratification.—During the early part of 1934 there was considerable confusion in the minds of many as to whether in view of the child labor provisions of the codes, ratification of the Amendment was still needed, and the progress of the Amendment was checked. Toward the end of the year, however, a clearer understanding seemed to prevail of the temporary, emergency nature of the code provisions and the need for ratifying the Amendment in order that the gains obtained under the codes might be made permanent.

Ratification Campaign.—An intensive campaign for ratification was planned for 1935, when many more states were scheduled to hold regular sessions of the Legislature. President Roosevelt and many Administration officials endorsed ratification of the Child Labor Amendment as the logical means for maintaining the advances in child labor regulation achieved by the codes.

CONFERENCE OF NATIONAL CHILD LABOR COMMITTEE

The Child Labor Amendment was the topic for discussion at the annual conference of the National Child Labor Committee held at Kansas City, Mo., May 23, 1934, in connection with the National Conference of Social Work. The principal speakers were Douglas P. Falconer of the Brooklyn Bureau of Charities and Mrs. George H. Hoxie, regional director for Missouri of the National League of Women Voters.

INVESTIGATIONS

Newspapers.—An investigation of the selling and delivery of newspapers by children was made by the Federal Children's Bureau and the results presented at the hearing on proposed changes in the child labor provisions of the code for the newspaper publishers' industry, held in Washington in June, 1934.

Cotton Garment Industry. — A study of the cotton garment industry was made by the Pennsylvania Department of Labor and Industry in February, 1934, to determine the extent of violations of code provisions relating to child labor, minimum wage, and working hour provisions. The child labor provisions were found to be remarkably well observed, only two out of more than 12,000 employed being children under 16 years of age.

Homework. — Several studies of conditions in industrial homework were made which revealed serious abuses of child labor. The National Child Labor Committee directed an investigation of homework in the artificial flower and feather industry in the New York region during the early spring. The New York Consumers' League studied the economic results of industrial homework in the state. The Connecticut Department of Labor investigated homework in the lace industry in the fall of 1933 and in the fabricated metal industry during the summer of 1934.

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WORKMEN'S COMPENSATION AND INSURANCE

By John B. Andrews

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SOCIAL INSURANCE LEGISLATION

Outstanding in the national social insurance legislation of 1934 was the enactment by Congress of the Railroad Retirement Act, providing a contributory old age pension system for 1,000,000 transportation workers, and the adoption by Congress of several improving amendments to the Federal Longshoremen's Compensation Act.

Important state labor legislation included the adoption of old age pension laws by Pennsylvania and Iowa, bringing the total number of state pension laws to 28. Unemployment compensation bills were introduced in several state legislatures and in Congress, resulting in the passage of a bill by the Senate in New York. There was strong public hearing support for the Wagner-Lewis bill in Congress, which was finally side-tracked by the President's message on June 8, promising a well-rounded program of social insurance for Congressional action early in 1935. For the same reason a bill providing Federal aid for state old age pensions, although favorably reported in both houses of Congress, was likewise permitted to die. In his notable message the President said: "Next winter we may well undertake the great task of furthering the security of the citizen and his family through social insurance. . . . The various types of social insurance are interrelated; and I think it is difficult to attempt to solve them piecemeal. Hence I am looking for a sound means which I can recommend to provide at once security against several of the great disturbing factors in life—especially those which relate to unemployment and old age."

The President, on June 29, appointed his Committee on Economic Security to study and report to him a plan for Federal-state cooperation in social insurance with a view to national encouragement sufficient to secure the adoption of acceptable state laws with reasonable promptness. Meanwhile, the California and Massachusetts legislatures had created new commissions to study unemployment compensation, and Massachusetts also provided for a commission to study old age pension plans. Governors of several states appointed similar committees.

WORKMEN'S COMPENSATION

Amendments to Basic Laws.—Although two (Mississippi and South Carolina) of the four non-compensation states (Arkansas, Florida, Mississippi and South Carolina) met in regular legislative session in 1934, no new basic compensation laws were enacted. However, in the seven states already having such basic laws whose legislatures met in regular session during the year, amendments were adopted. Meanwhile, of 22 states having special sessions, two (Michigan and Ohio) made changes in their basic laws. No changes were made in these laws in the Philippine Islands and Puerto Rico.

Silicosis Protection.—In Kentucky a feeble step was taken toward protecting the victims of the occupational disease ''silicosis'' by permitting employers engaged in the operation of glass-manufacturing, quarries, sand mines, and other siliceous industries voluntarily to bring this special risk under the compensation law.

Changes and Adjustments.—Louisiana extended the time limit for making claim for compensation in cases where the disability does not result immediately following the accident. In Massachusetts, a number of new amendments are designed to improve in this connection the general insurance laws, give greater protection to children illegally employed and to orphans, and to expedite administrative hearings in certain cases in dispute. Michigan now provides for a week's notice to both parties of the judgment whenever an award of compensation has been due and unpaid for eight days and upon expiration of the seven-day period requires the labor department to take the matter to the circuit court whose judgment is reviewable only on questions of fact by the supreme court.

Work-relief Provisions.—In New Jersey provision was made for payment of compensation to those disabled while engaged on work-relief projects. New York excluded persons on work-relief from the benefits of the compensation law, but made special provision from relief funds under which victims of such injuries may receive family relief, medical services, and an allowance of $3,500 exclusive of funeral benefits in case of death or permanent disability.

Disability and Protection Provision. — Dermatitis from brick, cement, lime, concrete or mortar was added to the schedule of compensable occupational diseases; the minimum weekly compensation for permanent total disability was fixed at $15 for any injury; *prima facie* evidence of an employer's failure to insure compensation was more clearly defined; compensation was made the exclusive remedy also for an employe who wishes to sue a fellow employe as a third party, and the special fund provision for delayed claims was amended. In Ohio, full authority to administer compensation was restored to the Industrial Commission; in Rhode Island compensation protection was extended to the State National Guard; in Virginia verbal correction was made in relation to facial or head disfigurement.

Changes in Federal Longshoremen's Act. — The first material changes were made in the Federal Longshoremen's and Harbor Workers' Compensation Act, adopted by Congress in 1927 and one year later extended by reference to private employes of the District of Columbia. These amendments were designed largely to improve the administration of the law and to smooth out certain unanticipated problems occasioned by varying court interpretations. Provision is now made that in permanent partial disability cases, compensation shall be paid during the entire healing period and that such payments should be in addition to the weeks of benefits fixed for such injuries in the schedule. At the same time, by way of compromise, the scheduled benefit period is decreased in each instance, so that in this respect the resulting cost is not appreciably increased. Moreover, when a worker is awarded compensation for the loss of more than one of the members listed in the schedule (for example, a finger and a thumb), such awards may now be made separately and to run consecutively. Two other amendments authorize deputies to suspend compensation payments if the injured employe unreasonably refuses medical and surgical treatment and to make partial lump sum awards where entire lump sum awards would not be desirable. Finally, the amendments broaden the grounds and extend the period for the modification of awards.

VOCATIONAL REHABILITATION

Rhode Island amended her Vocational Rehabilitation Act. Only three states—Delaware, Kansas and Vermont—have thus far failed to enter into the Federal-state cooperative educational plan for vocational retraining of cripples as provided under the national law of 1920.

OLD AGE PENSIONS

Amendments and New Laws. — Minor amendments to existing old age assistance laws were made in Maryland, New York and Oregon. Pennsylvania and Iowa, in special sessions holding over from the preceding year, adopted basic old age pension laws. The Iowa act provides maximum monthly pensions of $25 to persons 65 years of age and over whose annual incomes do not exceed $465. In Pennsylvania the age limit is 70 years and the maximum pension, to indigents only, is $30 a month. Louisiana made it unlawful for an employer of 25 or more workers in hiring employes to fix an age limit of less than 50 years unless he has set up an old age pension system.

Railroad Retirement Act. — The most important pension legislation of the year was the Railroad Retirement Act, which includes under a single system all employers and employes of an entire industry. The amount of the pension is determined by multiplying the number of years of service, not exceeding 30, by percentages of the basic monthly wage. With variations, the basic age is 65. Funds for the system, including expenses of administration, are provided through six per cent of payroll, one-third paid by employes and twice as much by the railroad. This amount was made necessary by excessive accumulation of superannuation in the railroad industry.

UNEMPLOYMENT COMPENSATION

Wisconsin's Pioneer Law. — On July 1, 1934, America's pioneer unemployment compensation law went into effect in Wisconsin, following announcement by the state Industrial Commission that the terms of a payroll and employment index formula adopted by the legislature had been met. The entire cost of the system, including expenses of administration, are borne by a payroll tax upon employers. Each employer's account is kept separate and his liability is limited to the amount of his account. By July 1, 1935, it is estimated, Wisconsin employers will have paid into the unemployment reserves approximately $5,000,000, and rights to benefits will begin to accrue to some 300,000 workers in the state.

Pending Legislation.—Bills were introduced in a number of state legislatures and in Congress, and adopted by the Senate in New York. Action at Washington following public hearings on the Wagner-Lewis bill, designed to encourage acceptable and speedy enactment of state laws, was postponed upon the promise of President Roosevelt that he would present a well-rounded program for social insurance legislation early in 1935. The President's announcement, and the expected reports from a number of state investigating committees, throws the light of great expectation of unprecedented legislative action into the year, 1935. The Massachusetts and New Hampshire Commissions, late in the year, submitted reports supplemental to a long list of such official findings in favor of unemployment compensation. In general there was a tendency in all of the states to await announcement and enactment of the Federal plan before recommending specific standards for adoption in the fundamental state laws.

Opposition of Employers. — Employers' organizations, including the National Association of Manufacturers, the National Industrial Conference Board and the Chamber of Commerce of the United States, while recognizing the desirability of unemployment reserves to tide involuntarily unemployed workers over periods of temporary joblessness, continued to oppose compulsory legislation on the subject. They endeavored to delay action by urging provision for further elaborate study of unemployment insurance systems abroad. Late in the year, with country-wide legislation imminent, the National Retail Dry Goods Association suddenly began holding conferences and circularized its membership with a view to taking some position on the subject of unemployment compensation.

A. F. of L. Endorsement. — The American Federation of Labor at its 1934 annual convention re-affirmed its favorable adoption two years earlier of unemployment compensation principles with emphasis upon the promotion of two primary objectives: (a) the stimulation of more regular employment, in so far as possible, and (b) the payment of unemployment compensation as part of the cost of production, no part of the contributions to be paid out of the wages of labor. In September, in a special article in the *American Labor Legislation Review*, President William Green elaborated this position which he again reiterated for the President's Committee on Economic Security.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. FOR LABOR LEGISLATION, 131 E. 23rd St., New York City.

AMERICAN FEDERATION OF LABOR, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

AMERICAN FEDERATION OF MUSICIANS, 1450 Broadway, New York City.

CONFERENCE FOR PROGRESSIVE LABOR ACTION, 128 E. 16th Street, New York City.

INTERNATIONAL ASSN. OF GARMENT MANUFACTURERS, 395 Broadway, New York City.

INTERNATIONAL ASSN. OF MACHINISTS, 265 W. 14th Street, New York City.

INTERNATIONAL LONGSHOREMEN'S ASSN., 265 W. 14th Street, New York City.

INTERNATIONAL SEAMEN'S UNION OF AMERICA, 666 Lake Shore Drive, Chicago, Ill.

JUNIOR ORDER OF UNITED AMERICAN MECHANICS, 3027 N. Broad St., Philadelphia, Pa.

LEAGUE FOR INDEPENDENT POLITICAL ACTION, 112 E. 19th Street, New York City.

LEAGUE FOR INDUSTRIAL DEMOCRACY, 112 E. 19th Street, New York City.

MARINE ENGINEERS' ASSN., 157 Chambers St., New York City.

NATIONAL ASSN. OF LETTER CARRIERS, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

NATIONAL CIVIC FEDERATION, 570 Lexington Ave., New York City.

NATIONAL FEDERATION OF POST OFFICE CLERKS, A. F. of L. Building, 9th and Massachusetts Ave., N. W., Washington, D. C.

NATIONAL INDUSTRIAL CONFERENCE BOARD, 247 Park Ave., New York City.

NATIONAL INDUSTRIAL COUNCIL, 11 W. 42nd St., New York City.

NEPTUNE ASSOCIATION OF MASTERS AND MATES OF OCEAN AND COASTWISE STEAM VESSELS, INC., 80 Broad St., New York City.

PILOTS' ASSOCIATION, 119 Broad St., New York City.

DIVISION XVII

RELIGION AND RELIGIOUS ORGANIZATIONS

PROTESTANT DENOMINATIONAL ACTIVITIES

By Herman C. Weber

Editor, *Year Book of American Churches*

GENERAL

The year 1934 seems to have been characterized by a rather general movement of the larger bodies in Protestantism toward a recovery in morale and a definite striving after an integration which would make them more effective in their ministries. Most of the larger groups held assemblies or conventions at which plans for denominational advance were presented and discussed. Many have annual meetings and are able to clear questions with dispatch. Some have biennial assemblages and a large number of these were scheduled for 1934. One leading body had its triennial convention during the year and another its quadrennial. Interest in the social implications of Christian teaching and practice characterized every session that was reported in the daily news. Especially was the question of the attitude of the Churches toward war debated, and this particular matter received very extended and somewhat varied treatment. During the summer and autumn a Religion and Welfare Recovery movement was launched in New York City under the auspices of the Golden Rule Foundation. Surveys of organized religion were made somewhat hastily, denominational organizations were lined up, an autumn program of church attendance and loyalty was launched and some well-advertised convocations held. Reports from most of the larger groups indicated that the tide of contributions toward missionary and benevolent objectives had turned and was slowly rising. In many parts of the country adjustments had been made for the carrying of indebtedness and while the reduction in preachers' salaries had continued there was evidence of returning financial strength. The biennial meeting of the Federal Council of Churches of Christ in America at Dayton, O., Dec. 4–6, brought together a notable body of church leaders and furnished a good deal of enthusiasm for an advance in the realm of religion. While the Council was vitally concerned with social adjustments and welfare as in the past, the interests of personal and universal religion received a large amount of attention. The criticism of several groups which had been restive under discussions of the so-called social gospel was allayed by the more adequate treatment of spiritual matters. The Oxford Groups, under the direction of Frank Buchman, continued their work of visitation of large centers for hotel meetings and house-party discussion of personal religion. On the whole, competent observers felt that church attendance in Protestant churches had definitely increased; the interest of people in religion as manifested in attention to broadcasts of religious services and in attention to religious topics in periodical literature was very much on the increase.

A proposal was made to the Federal Council by its Commission on Evangelism that a Preaching Mission on a nation-wide scale, enlisting the acknowledged great preachers of the world be scheduled for 1935 or 1936. This was unanimously adopted.

STATISTICS

The *Christian Herald* has published an annual survey of the memberships, number of churches and clergy of all the religious bodies in the United States for a good many years. The statistics are difficult to obtain and have been to some extent unrepresentative of individual bodies at times owing to changes of category or definition at intervening assemblies as well as occasionally to change of clerks or statisticians. Under the direction of the Rev. Dr. Kieffer, president of the Society of Statisticians of Religious Bodies, the latest tabulations are more reliable than has been the case. Dr. Kieffer has introduced an additional column in the tables which gives the number of members over 12 years of age, thus making a comparison possible between bodies which admit children to membership and those which do not do so. The latest tables, published in June, 1934, also include a larger number of bodies and more complete returns. A table is presented (p. 624) of bodies which report more than 100,000 members (of all ages), together with the percentage of increase figured on the total membership, and also the net membership, those over 12 years of age.

These reports were collected in the spring of 1934 and do not include the latest figures for the bodies which finished their ecclesiastical years in March, April or May. The term ''Old Report'' refers to the Census of 1926 of Religious Bodies, for the most part. The present membership of these bodies is doubtless larger than given. In this table are 42 bodies which carry on their rolls 96.25 per cent of the memberships of the churches and synagogues without counting the large sections of the outstanding groups which are reported as removed, inactive, or nonresident.

EVANGELICAL AND REFORMED CHURCH

An outstanding event of 1934 was the union of the Reformed Church in the U. S. and the Evangelical Synod of North America. The extraordinary feature of this union was that it was effected ''without creed or constitution'' as a ''union of mind and body.'' This is believed to be without parallel in the long history of church union. The Reformed Church General Synod met on June 26 in the Eighth Reformed Church, Cleveland, O. The church was not large enough to contain the crowds. Dr. Dan Bradley of the Pilgrim Congregational Church, offered the use of his more commodious auditorium. The offer was accepted and the sessions of the synod were held there, only one block from the meeting place of the Evangelical Synod. The latter synod met in Zion Evangelical Church. At 6:30 P.M. on June 26, the representatives of the merging churches formed processions which joined at the threshold of the Zion Evangelical Church, which was then filled to overflowing. President Christman of the Reformed Body conducted the devotional service and President Press of the Evangelical group presided. A joint resolution presented by the Commision on Union was adopted and the two presidents clasping hands, declared the union formally and legally effected. A deeply moving communion service then followed. The General Synod of the Evangelical and Reformed Church held its first session at 9 A.M. on Wednesday, June 27. Rev. L. W. Goebel was elected temporary chairman, and Rev. J. Rauch Stein, temporary clerk. A Committee on Nominations reported a set of officers who were then unanimously elected. They were: President, Rev. George W. Richards, Lancaster, Pa.; 1st Vice Pres., Rev. Louis W. Goebel, Chicago; 2nd Vice Pres., Judge D. J. Snyder, Greensburg, Pa.; 3rd Vice Pres., J. C. Fischer, Evansville, Ind.; Stated Clerk, Rev. J. Rauch Stein, Philadelphia; Assoc. Stated Clerk, Rev. F. A. Meusch, New Albany, Ind.; Treasurer, F. A. Keck, St. Louis; Assoc. Treasurer, Milton Warner, Philadelphia.

These two bodies have much the same racial antecedants. The founders of the Reformed Church came from Germany and Switzerland to Philadelphia from 1700 to 1707. The Evangelical Synod founders came from Germany to Missouri during the period 1825 to 1860. Both bodies report about the same number of members (see membership table below). An executive committee was appointed to whom all details of union were committed. All boards and agencies of each body were continued with injunctions to effect the merging of work and offices as soon as possible.

Practically no other business was transacted by the new General Synod, and final action on details of the merger will not be taken until the biennial meeting in 1936 or thereafter.

TABLE OF CHURCH MEMBERSHIP

(The years vary for different bodies but include largely the calendar year 1933 and ecclesiastical years ended in 1933)

Body	Gross Membership	Inc. over Previous Yr. Per Cent	Membership Over 12
Adventists, Seventh Day	135,766	Old Rpt	132,100
Assemblies of God	136,705	5.6	122.624
Northern Baptists	1,485.422	3.0	1,434,918
Baptists, Southern	4,173,928	2.6	3,919,319
Baptists, American Assn	263,484	8.5	260.876
Baptists, Nat. Conv. (col.)	3,580,540	0.6	3,566,764
Baptists, Primitive	102,895	0.0d	102,690
Brethren, Conservative	154,169	3.1	144.148
Church of Armenia in A.	116,187	1.1d	87,134
Church of Christ, Scientist	202,098	Old Rpt.	202,098
Church of the Nazarene	109,984	10.0	104,265
Church of God in Christ (col.)	200,470	0.2	190,470
Churches of Christ	433,714	Old Rpt.	433,714
Congregational—Christian	1,024,887	1.9d	997,830
Disciples of Christ	1.566,772	0.1	1,455,531
Evangelical Church	221,119	1.9	210,358
Evangelical Synod	437,879	3.0	340,000
Jewish Congregations	4,081,242	Old Rpt.	2,930,332
Latter Day Saints (Mormons)	638,761	1.7	491,207
Lutheran, United Church	1,443,780	1.3	1,068,397
Lutheran, Amer. Conference	1,387,294	1.0	986,258
Lutheran, Synodical Conf.	1,403,048	1.7	979,409
Methodist Episcopal	4,140,152	3.4	3,775,819
Meth. Epis. African	650,000	Old Rpt.	581,750
Meth. Epis. Zion, African	590,625	7.2	514,435
Meth. Epis., South	2,681.233	1.3	2,423,835
Meth. Epis., Colored	367,823	0.5	329,937
Meth. Protestant	192,447	0.1d	178,783
Orthodox, Greek	289,000	Old Rpt.	279,000
Orthodox, Russian	320,000	Old Rpt.	226,240
Orthodox, Serbian	100,000	Old Rpt.	75,000
Orthodox, in N. A.	155,000	Old Rpt.	120,000
Presbyterian, U. S.	469,310	0.1	434,112
Presbyterian, U. S. A.	1,914,886	2.0d	1,828,716
Presbyterian, United	177,265	0.5d	169,111
Protestant Episcopal	1.876,390	1.1	1,384,776
Reformed in America	158,892	0.7d	156,350
Reformed in U. S.	474,497	0.6d	344.773
Reformed, Christian	114,946	1.8	77,933
Roman Catholic	20,199,594	0.2	14,503,309
Salvation Army	104,336	1.6	65,932
United Brethren	403,786	0.8	366,638
Totals	58,680,326	....	47,996,891
All Other Bodies	2,132,548	....	1,893,314
Grand Total	60,812,874	1.0	49,890,205

d: Decrease for the year.

THE REFORMED CHURCH IN AMERICA

The general synod of the Reformed Church in America met in Grand Rapids, Mich. on June 7. A skeleton or *pro forma* session was held in 1933 with no business transacted, but a full session was held this year. The continuity of synods was maintained, a like skeleton meeting being proposed for 1935 and a full session for 1936. The Rev. John Wessellink of Pella, O., was elected president and the Rev. A. L. Warnshuis vice president. There was considerable discussion of economics in administration and some progress for the consolidation of the work of some agencies.

THE PRESBYTERIAN CHURCH, U. S. A.

The general Assembly met in annual session at Cleveland, on May 24. The Rev. William Chalmers Covert, the secretary of the Board of Christian Education, was elected moderator. The outstanding business on the docket of the Assembly was the presentation of a report from the General Council of the Church on the status of an independent board of Foreign Missions organized by fundamentalist critics of the regular board. A very strong course of action was suggested by the Council and was overwhelmingly approved by the Assembly. All presbyters serving as directors of the independent board were ordered to sever their connection, and presbyteries were directed to require this procedure and report to the Assembly. The Board of Foreign Missions was overwhelmingly endorsed by the Assembly. The Assembly showed itself impatient over the activities of a small group of ultraconservatives. A committee appointed to study the consolidation of the Board of National Missions and the Board of Christian Education reported progress and was continued. The committee presented its final report in October to the General Council, advising consolidation, and their recommendations were ordered referred to the General Assembly of 1935 with the approval of the Council. A series of advanced resolutions covering social and economic questions was warmly debated. The liberal group in the Assembly seemed to be in the majority and the resolutions condemning war, supporting the rights of conscientious objectors, urging substantial economic changes, condemning unwholesome movies, and opposing the liquor traffic, were passed by majority votes.

THE PRESBYTERIAN CHURCH, U. S.

The General Assembly of the Southern Presbyterian Church was held in May at Montreat, N. C. It was reported to have been an undistinguished gathering, a large proportion of its commissioners being in attendance for the first time. An effort was made to get the Assembly to reestablish relations with the Federal Council of Churches of Christ in America, but the vote against this suggestion was decisive. An attempt at union with the Associate Reformed Presbyterian Church was defeated by the action of the Synod of that Church.

THE UNITED PRESBYTERIAN CHURCH

The General Assembly of the United Presbyterian Church met in Oxford, O., June 20-27. The principal subject for discussion was a plan of union with the Presbyterian Church, U.S.A., which had passed that body by a practically unanimous vote earlier in the month. An opponent of union was elected moderator and, when the proposal to send the plan of union down to the presbyteries came to a vote, it was defeated by a narrow margin.

THE PROTESTANT EPISCOPAL CHURCH

The fifty-first triennial convention of the Protestant Episcopal Church convened in Atlantic City, N. J., Oct. 10. The opening service in the auditorium which had been supplied with an elaborate chancel arrangement attracted 35,000 people. The House of Deputies went into session at the auditorium and the House of Bishops in Haddon Hall. One of the principal subjects for discussion was the budget of the National Council for the administration of missionary and benevolence work in behalf of the Church. The Council reported a heavy indebtedness and was concerned about the budget for the future. After long discussion a budget of $2,700,000 was retained as an objective for the Church, but a so-called emergency schedule of $2,313,115 was agreed upon as a budget of askings. Quotas were abolished but apportionments of this schedule, made by the dioceses themselves in cooperation with the National Council, were approved. The perennial question of a change of the name Protestant Episcopal was brought to the convention, very warmly debated, and finally disapproved. Quite unexpectedly a resolution urging government permission for licensed physicians, hospitals and clinics to give out birth control information under regulation was presented and, though strongly opposed in both Houses, was carried in both. A special committee of ten members appointed to consider national and international relations found its report meeting vigorous opposition in both Houses. It was amended and made much more vigorous and liberal. The report as adopted definitely opposed the blessing of any war by the Church, asked for recognition of the rights for conscientious objectors and called for pressing the investigation of munitions manufacture and sale. Resolutions on economic and industrial problems were so unsatisfactory that they were first amended by the House of Deputies and then stricken out by the House of Bishops. The laymen of the Church presented an "every man's offering" including some other contributions of $251,000 toward the deficit of the Church. The united thank offering of the women was $788,979. The children's offering totaled $911,681. A forward movement committee was appointed to carry out an organized effort to re-invigorate the life of the Church. Five bishops, five presbyters, and ten laymen were appointed under the chairmanship of the Bishop of Ohio. Bishop Perry was relieved of his office as chairman of the National Council, and Bishop Cook of Delaware was elected in his place. Bishop Perry is the presiding bishop of the Church and was relieved from some of his general responsibilities with a view, it was rumored, to preparing the way for making him Archbishop at the next convention.

CONGREGATIONAL CHRISTIAN CHURCHES

The biennial Council of the Congregational and Christian Churches was held at Oberlin, O., June 21-27. This Body has little legislative responsibility. It organized into ten seminars for the study of the following questions: peace problems, church attendance and stewardship, the ministry, Christian higher education, missions, the social gospel, economic questions and liquor control, rural life and farm problems, current theological questions, religious education and evangelism, and interracial relations. The Council elected Rev. S. Parkes Cadman its honorary moderator, and the Rev. J. E. Stocking of St. Louis as moderator for the biennium. A proposal has been made in the spring that the Oberlin Council establish a board or agency for social action. This proposal was debated in the denominational press for weeks in advance of the Council meeting. The Congregational churches are traditionally opposed to centralization and there was opposition to the setting up of another agency by the Council. A committee of which John Schroeder of Portland, Me., was the chairman, drew up a series of resolutions which set up a Council for Social Action to consist of 18 members. When these resolutions were presented, they were almost unanimously approved. The Council for Social Action has organized and has, since the Council meeting, been endeavoring to organize local councils for discussion and information. It was reported that many delegates believed this action to be the most important taken by any council in recent years. There were over 1,300 delegates in attendance, of whom about 250 were laymen or laywomen.

NORTHERN BAPTIST CHURCH

The Northern Baptist Convention held its meting in Rochester, N. Y., May 23-28. Its main concern was the report of the Commission of Fifteen which was appointed at the Washington Convention in 1933, and to which were referred all recommendations from committees or individuals having to do with the organization or reorganization of the Convention or any of its participating organizations. Items of major importance were the question of annual or biennial sessions, rotation in membership of boards and cooperating societies, the consolidation of missionary boards, the unification of educational activities, the methods of raising and distributing denominational moneys and a revision of the by-laws of the Convention. Annual meetings were recommended, rotation was adopted, but the proposal to consolidate the women's missionary societies with the regular boards was defeated. Unification of educational activities was voted and the revision of by-laws accepted. The hottest debate occurred over the budget arrangements and the collection and allocation of contributions. The report of the commission was finally adopted with some modification of its suggestions as to the relation of specific objectives to general budget division. Resolutions covering war and peace were hotly debated but overwhelmingly passed. They asked connectional societies to scrutinize investments, lest income from war material production be received, asked embargo on arms, defended the rights of conscientious objectors, and urged the signing of personal non-invasion pledges. A post-convention meeting appointed a commission of nine to work out a program of Christian action to be submitted to the Convention of 1935.

THE DISCIPLES OF CHRIST

The eighty-fourth convention of the Disciples was held in Des Moines, Ia., Oct. 16–21. It was presided over by William F. Rothenburger, of Indianapolis. It elected President D. W. Morehouse of Drake University, president of the 1935 convention. Its main questions were educational coordination, a new constitution for the United Missionary Society and unified promotion. These were all approved. The plan for united promotion was presented as follows: ''The boards, colleges and organizations cooperating will work through a central office and seek to eliminate competition in securing funds, and develop more efficiency in securing and disseminating funds for the various causes of the brotherhood.'' The new constitution for the missionary society changes its name to United Society of Christian Missions and Education, and calls for a complete articulation. There was sweeping condemnation of the war system including compulsory military training, the profit motive in the manufacture and sale of arms and munitions, and approval of the rights of conscientnous objectors to war. The resolutions were reported in the denominational press as the strongest on war ever passed by a Disciples' convention.

METHODIST EPISCOPAL CHURCH, SOUTH

The Methodist Episcopal Conference, South, held its quadrennial session at Jackson, Miss., April 20 to May 1. Questions of organization and of finances were much to the fore. An attempt was made to limit the term of the bishops to four or eight years. This was defeated and the life term retained. The Conference took a very important action in making a college education requisite for entrance to the ministry. The social creed of the churches, as adopted by the Federal Council, was made the social creed of the Southern Methodist Church with some changes. Considerable excitement was developed over an attack on Bishop Cannon who was on trial in Washington and acquitted of the charges against him on the third day of the Conference. Bishop Cannon's friends won the debate and retained him as an effective bishop. The Board of Temperance and Social Service, however, of which he was chairman, was discontinued and the bishop transferred to the Pacific Coast.

RELIGIOUS BOOK OF THE MONTH CLUB

The Religious Book of the Month Club through a very representative committee selects a volume a month in the religious field for reading by its members. These choices are somewhat suggestive of the direction in which religious thinking is veering or developing. It seems worthwhile to record the list as significant for 1934. It is as follows:

Month	Title	Author
January	*The New Church in the New Germany*	Chas. S. MacFarland
February	*Reflections on the End of an Era*	Reinhold Niebuhr
March	*The Life of Cardinal Mercier*	John A. Gade
April	*Christian Missions and a New World Culture*	Archibald G. Baker
May	*Statesmanship and Religion*	Henry A. Wallace
June	*The Idea of Perfection in Christian Theology*	R. Newton Flew
July	*Church Unity Movements in the United States*	H. Paul Douglass
August	*Beyond Damascus*	F. A. Spencer
September	*Intolerance*	Winfred Ernest Garrison
October	*The Reason for Living*	Robert Russell Wicks
November	*Realistic Theology*	Walter Marshall Horton
December	*Catholics, Jews and Protestants*	Claris Edwin Silcox and Galen M. Fisher

INTERDENOMINATIONAL ACTIVITIES

By Preston King Sheldon

Editor and Writer

THE STRUGGLE FOR RELIGIOUS LIBERTY

Two statements opposing restrictions of religious freedom were signed by American clergymen in 1934 in moral support of Jews in Germany and Roman Catholics in Mexico who were being subjected to interference with worship by civil authorities. Both statements were signed by Protestants and Roman Catholics. Jews united in the protest on the situation in Mexico taking the initiative with Protestants and with them comprising the majority of signers of whom there were 500. The protest levelled at anti-Semitism in Germany came out in May with 1,200 signatures obtained under the auspices of the National Conference of Jews and Christians. This body also sponsored the second statement which was published in November and was inspired by the closing of Catholic churches and religious schools under authority of the Mexican Constitution promulgated Feb. 5, 1917. As the year closed spiritual leaders of leading religious faiths in the United States had begun a united campaign against political upheavals in which the safety of religious ideals was seen to be involved. This campaign was impelled by a sense of brotherhood which extended across national boundaries between groups of peaceminded citizens who were seeking the abolition of war.

ECUMENICAL STUDY OF CHURCH AND STATE

Fanoe Statement.—While the signers of the two statements drawn up in the United States included ministers from 26 denominations in 41 states and Canada, virtually the entire Christian world, including the Evangelical Protestant churches of Germany and the Eastern Orthodox Church, were represented in a statement drawn up in August at Fanoe, Denmark, opposed to autocratic Church rule and inviting Christian Churches generally to enter into cooperation in an ecumenical fellowship to examine problems of Church and State. This was adopted at a meeting of the Universal Christian Council for Life and Work. The deliberations of this body were centered around its interest in freeing the German Church from control of a totalitarian plan of civil government. The efforts of Nazis under Hitler to gain complete authority over the Protestant Church in Germany became known as the German Christian movement, which in essence was opposed to a Biblical basis of religious belief and to cooperating with church bodies in other countries. A State Church was proposed by leaders of the plan who organized themselves as the German Christian Society. In such a church under the Reich 28 State churches would have been united.

Opposition to the German Christian Plan.—Opposition to the plan by 8,000 evangelically-minded Lutheran pastors had grown rapidly so that the consecration of Ludwig Mueller as Reich Bishop which had been scheduled for the Fall of 1933 was delayed until Sept. 23, 1934. Dr. August Jaeger, civil administrator in the Ecclesiastical Ministry, was forced a month later to resign from his civil duties by leaders of the German Christians. He had used police to carry out designs against opponents of the Reich Church in Bavaria and Wuerttemberg. Chancellor Hitler's position was but vaguely understood until Oct. 30 when he withdrew his support of the German Christians. This followed the removal of ecclesiastical authority from Dr. Jaeger by Bishop Mueller.

Conference of Leaders of Youth.—Simultaneously there met at Fanoe members of the management committee of the World Alliance for International Friendship Through the Churches. Traffic in armaments and munitions of war, plans to promote the removal of profits from their manufacture, disarmament problems and the rights of conscientious objectors to war were all discussed. A Youth Conference held under the joint auspices of the Universal Council and the World Alliance voiced an opinion that the Church should never give its support to war and that rights of private conscience superseded those of state. A proposal to ask, in event of war, for civilian service for conscientious objectors, was referred to the Alliance and scheduled for further deliberations in 1935.

Support for Munitions Investigation.—A committee on message and recommendations in behalf of the World Alliance, having as chairman the Right Rev. G. Ashton Oldham, Protestant Episcopal Bishop of Albany, N. Y., embodied the proposals made in a report issued in November. This called for an embargo on arms, munitions and contraband manufactured in the United States, to prevent their use by belligerents in a war outside our boundaries, a pledge that the United States Government would not send armed forces beyond its borders for war purposes and that our naturalization laws be changed to allow aliens qualified in other respects to become citizens without exacting from them a promise to bear arms. Rigid control by the government over the manufacture and sale of arms and munitions was recommended and the committee pledged support to Senator Nye, chairman of a Senate committee investigating the munitions industry. It was urged that disarmament conferences be held until an international agreement could be reached to eliminate weapons of offensive warfare and to reduce the making of defense weapons. An international Board of Control was also recommended to have the duty of supervising the carrying out of provisions and agreements reached internationally.

Condemnation of Nationalism.—Entrance of the United States into the World Court was also demanded together with the framing of a public statement of terms on which the United States would be willing to enter the League of Nations. Nationalism, military training in schools and colleges and the exclusion of orientals from citizenship with discriminatory land laws were all discountenanced. A manifesto against war was issued as an Armistic Day Message by trustees of the Church Peace Union, the American Branch of the World Alliance, which in addition to covering the same ground as the alliance, frowned on naming military and naval officers as delegates to international peace conferences.

FEDERAL COUNCIL OF CHURCHES

Biennial Meeting.—Senator Nye travelled by airplane from Washington to Dayton, O., to speak at a meeting of the Federal Council of the Churches of Christ in America, which held its first biennial meeting Dec. 4–7 under a plan adopted in 1932, dropping quadrennial meetings. Dr. Ivan Lee Holt, minister of St. John's Methodist Episcopal Church South, St. Louis, was elected president of the Council, succeeding Dr. Albert W. Beaven, president of the Colgate-Rochester Divinity School. Senator Nye, who had left hearings in munitions investigations to be able to give his address at Dayton, described evidences the committee had found of munitions makers who were ready to sell their wares to countries who might conceivably use them against America. Religious leaders reached the conclusion during the progress of the Federal inquiry and their own meetings that munitions makers ''know no Fatherland.'' The subject of disarmamen and other phases of peace and war consumed the greater part of the attention of church leaders throughout the year. The Federal Council began a study of the problem of chaplaincies in military and naval service. The proposal was introduced that conscientious ministers could no longer identify themselves as members of military and naval establishments and, as a substitute, could better insist on retaining a civil status while ministering to the personnel of the two services. This matter was placed before denominational leaders for further study.

Exemption from Military Training.—A Supreme Court decision in December ruling unanimously in favor of suspension of the right of the University of California and other land grant colleges to require military training in meeting requirements for graduation and to deny admission to students refusing to comply, was answered by a resolution of the Federal Council urging support of a movement to change the status of military training from cumpulsory to voluntary. Congress was asked to pass legislation exempting conscientious objectors from military drill in civil educational institutions. The latter were urged to take the initiative in placing drills on a voluntary basis, pending action by Congress.

Relations with Churches Abroad.—The Federal Council published a report of progress toward final adoption by all Christian faiths of fixed dates for Easter and other religious anniversaries. The plan was taken up at the suggestion of the League of Nations in connection with plans to revise the calendar. The Council's department of relations with churches abroad reported that for the first time in history all churches had been consulted on such a proposal.

Prohibition.—An analysis of conditions under 12 months of repeal was given in a report of the department of social service. The principal point of agreement was that an educational program designed to promote temperance was all that could be decided upon at the session. Little agreement was found on most points. Repeal, however, was felt to have failed, although patience was advised with experiments under varying methods of control. The committee's statement was accepted as informative. Four recommendations were adopted: (1) That the Council endorse work for temperance and liquor control by the denominations, especially by the cooperative International Council of Religious Education; (2) That in reorganization of denominational temperance agencies for coordination, special attention be given to educational agencies; (3) That a restudy of methods in the field of political action be made to determine what ones are desirable; (4) That the social service committee continue its study of the temperance problem to find facts of value to the movement. Bishop James Cannon Jr. of the Methodist Episcopal Church South, dry leader, called for unalterable opposition to the liquor traffic without compromise with the intention of eventually to propose a return to Prohibition as the sole method of liquor control.

Evangelism.—An agreement was reached to launch an evangelistic campaign late in 1935 with the aid of some of the world's leading ministers. The proposals was made by Dr. William Hiram Foulkes, chairman of the Federal Council's Department of Evangelism. The preaching is to be done by a National Preaching Mission with meetings scheduled for the principal cities of the United States. A message for the churches was adopted, calling for a spiritual advance in which a necessity for greater unity was emphasized.

Industrial Relations.—The business of the first session of the Council included a reemphasis of the Council's opposition to child labor in the form of an endorsement of the national child labor amendment calling for its speedy ratification by the states. The Council voiced its purpose to continue working in behalf of abolition of unemployment and included in its resolutions the urging of a program of public works and specifically recommended the clearing up of slum areas and the providing of public housing.

Peace.—After the conclusion of the official sessions a full day was given over to hearing discussions of problems connected with the churches and world peace. Kirby Page, publicist and contributing editor to *The Christian Century,* emphasized his findings that churches generally were condemning war as sin. Mr. Page, as editor of *The World Tomorrow,* which discontinued publication early in the year after publishing replies from 20,870 Protestant ministers and Jewish rabbis to a questionnaire sent to 100,000 clergymen, not including Catholics, had found about 13,000 American clergymen who were willing to refuse to sanction or participate in any future war. Twelve religious bodies were represented. The questions included in their scope the fields of war and economic justice. About 16,000 favored substantial reductions in armaments. About 7,500 believed a sufficient distinction existed between the terms ''defensive'' and ''offensive'' as applied to war to justify their sanction of a war of defense. More than 10,000 favored immediate entrance of the United States into the League of Nations and 15,600 disbelieved in armed intervention of our troops in other countries to protect lives and properties of American citizens.

Economic Replies.—Drastic limitation of wealth through imposition of inheritance taxes was favored by 16,500 clergymen in the World Tomorrow questionnaire. Higher taxes on incomes and abolition of tax exemptions on securities and other possible sources of revenue in commerce were also approved. The votes cast for national industrial unions were 11,300 as against 2,600 for company unions. Private ownership of banks was favored by 7,200 and social ownership of these institutions by 7,000. Only 1,000 could see the ideals of Jesus and the noblest of the Hebrew prophets exemplified in capitalism as expressed through ''rugged individualism'' prior to 1929. About 18,300 voted for a cooperative commonwealth. In answering a request for an opinion on what method would be best to achieve a cooperative commonwealth about 10,700 were for drastically reformed capitalism and 5,900 chose socialism. About 100 voted for Fascism and an equal number for Communism.

Rural Life Sunday.—The Committee on Town and Country of the Home Missions Council and the Federal Council of the Churches of Christ in America issued a leaflet of suggestions for observance of the fifth Sunday after Easter as Rural Life Sunday. A number of Catholic churches were also observing a similar day. The message was written by Dr. Kenyon L. Butterfield. It called for the awakening of a new consciousness of God with a deepening of personal religious life, a new appreciation of the religion of Jesus, a renewed pride in farm life as indispensable to the nation's welfare, a determination by farmers to work for a full understanding of mutual problems and to make full use of opportunities to strengthen the Church in its leadership.

Labor Day Message.—The annual Labor Day message of the Federal Council was prepared by the Rev. Dr. Albert E. Day of the Mount Vernon Place Methodist Episcopal Church, Baltimore, chairman of the social service department. With it went a prayer written by James Myers, industrial secretary of the council. This besought Divine inspiration restraining from violence those who would appropriate for society and those who would protect for themselves the vested interests of accumulated wealth. The message found labor as well as capital to be on trial and the general public to be "at the bar of judgment." Verdicts upon leadership were being made. "The measures now being tried and any others which give promise of a cure of our social sickness, demand an integrity, a spirit of fair play, a capacity for long views, a willingness to surrender personal privilege and to share, such as have seldom been sought at the hands of any population in peace time," the message read, and continued in part, "Codes cannot give us a better society. There must be consecrations too." It was received by 110,000 Protestant pastors to be read the first Sunday in September.

Attack on the Council.—A flare-up against the Federal Council, which gained no further headway than the fact it was pronounced and filed, was registered in the fall by a group of religionists calling themselves the Interstate Evangelistic Association, which in the same breath condemned the council with "Reds, Communists, Bolshevists, Soviets" and similar groups. The statement denouncing the Council said "we denounce as misrepresentative of our co-religionists the Federal Council of Churches of Christ in America, and urge that all conservative Christian churches disassociate themselves from said council. In this connection we denounce especially the countenance and support which said council is giving to the spread of indecent literature, designed under false colors to poison the minds of our youth. What has been done in this direction is so filthy as to pass belief. It constitutes a scandal and a shame to all decent people, Christian or non-Christian." Thus did a minority expend its anger but without official sectarian sanction.

THE CRUSADE FOR PEACE

Conference Plan.—Conferences on peace were being held all over the United States the last quarter of the year under the auspices of churches. The plan was conceived at a meeting early in the year of the Federal Council's Executive Committee which authorized the Department of Justice and Good Will to evolve a program. Literature was prepared for use of the leaders and sent out through state and city councils of churches and community ministerial associations.

Program of Action.—The executive committee commended to the churches an eight-point program of peace action as an expression of conviction to be conveyed to laymen. These points were:

1. That the United States should press upon the nations the multi-lateral pact of non-agression suggested by President Roosevelt by which each nation would pledge itself not to send its military forces across the boundary of other nations.

2. That the President should be authorized to place an embargo on arms, munitions, and credits to nations that send their military forces across the boundary line of other nations, or propose to do so.

3. That the arms and munitions industry should be placed under government control and that the United States should join with other nations in exercising strict control of the international traffic in arms and munitions.

4. That the President and Congress should be urged to withhold appropriations required for carrying out the naval building program authorized in the Vinson Naval Bill.

5. That the nations should completely abolish all weapons designed primarily for aggressive purposes and provide for a comprehensive system of international armaments control.

6. That the nations should completely renounce, except for strictly police purposes, all military and naval aviation and should cooperate in the establishment of international supervision of commercial aviation in order to prevent its illegitimate use for military purposes.

7. That the United States should promptly join the World Court and should define the terms upon which it would be willing officially to relate itself to the League of Nations.

8. That reciprocal tariff agreements should be negotiated by the United States with other nations and that the

United States in cooperation with other governments should deal with all the economic issues that are causing international difficulty, suspicion and hostility, with a view to removing the causes that make for war.

Commissions.—Three commissions were named to prepare for the crusade. One was to study the Christian basis of world peace. Its duties were (1) to make clear the witness of the Christian Gospel and to analyze the position of the churches on the issues of peace and war; (2) to study the problem of moral disarmament, and (3) to analyze and define the true nature of Christian patriotism. The members were John Howland Lathrop, chairman; Albert W. Beaven, retiring president of the Federal Council; Allan Knight Chalmers, Henry H. Crane, Peter K. Emmons, Rufus M. Jones, Mrs. L. B. Mather, Mrs. Daniel A. Poling, S. D. Press, Rt. Rev. William Scarlett, Paul de Schweinitz, Anne Seesholtz, Channing H. Tobias and Bishop W. J. Walls.

Peace Policies.—The second commission was named to take up a study of peace policies. The duties were (1) to examine the circumstances and conditions out of which wars emerge; (2) to consider the policies and programs of governments best designed to secure world justice and peace; (3) to study the existing world peace machinery and the relations of the United States thereto; (4) to examine the problems of the reduction of armaments and of military budgets and the control of the traffic in arms and munitions; and (5) to study the relations of the United States to Latin America and the Far East. The members were Henry A. Atkinson, chairman; Herbert E. Benton, A. J. C. Bond, Mrs. Howard A. Field, James H. Franklin, Mrs. Clayton F. Harcourt, Finis S. Idleman, Mrs. Orrin R. Judd, Paul S. Leinbach, D. P. McGeachy, Bishop M. T. Maze, Bishop John M. Moore, Rt. Rev. G. Ashton Oldham, Elinor K. Purves, Mary E. Woolley and R. R. Wright Jr.

Peace Education.—The third commission was to have as its duties (1) to make a study of the peace educational literature of the various communions, evaluating its strong and its weak points; (2) to suggest to the department of international justice and good will of the Council the types of educational literature which it would seek to produce by way of supplementing that of the denominations; (3) to suggest ways by which the peace educational program of national church bodies, city and state councils, churches, and local churches might be made more effective; (4) to recommend a program of project activities for national church bodies, for communities, and for local churches; and (5) to consider, in the light of the Peace Pact of Paris, the responsibility of the Federal Government for popular peace education. The members were Lucius H. Bugbee, chairman; J. C. Broomfield, Walter G. Clippinger, Paul D. Eddy, Mrs. John Ferguson, Howard D. Higgins, Mrs. R. J. Hudelson, John Leslie Lobingier, Albert W. Palmer, Harold McAfee Robinson, A. M. Townsend and Luther A. Weigle.

OPPOSITION TO OBJECTIONABLE MOTION PICTURES

The Legion of Decency. — United objection was raised all through the last half of the year by Catholics, Protestants and Jews to the use of salacious themes and scenes in motion pictures with the result that producers in Hollywood, animated more by fear of reduced revenue than by a desire to accept clerical mandates, began toning down their films. Catholics took the lead in the program early in the year by forming under the leadership of a committee of bishops a Legion of Decency the scope of whose program was extended also to other forms of public entertainment, particularly the stage and dance halls.

Interfaith Response. — By July Protestant support of a pledge gotten up by Catholic leaders was assured and Jews had also joined a movement against indecency. Representatives of the three faiths met in New York City early in July and voted to cooperate with the Legion. The executive committee of the Federal Council of the Churches of Christ in America had voiced its intention to join the crusade at a meeting late in June. With the Catholic pledge on motion pictures as a model the Council's officials published a pledge suitable for Protestants which expressed the desire of signers to cooperate with the other faiths. No general boycott was advocated but simply that signers would exercise their individual judgments in selecting pictures for their entertainment. They agreed to remain away from all pictures which offended decency and Christian morality. The plan of cooperation included separate methods for the use of the three groups.

Basis of Selection.—As helps to guide patrons of motion picture performances, lists were published by Catholics, and the Federal Council circulated a pamphlet by Worth M. Tippy covering motion picture production and aims of producers as a means of assisting toward reasonable selection of pictures. On the reverse side of the Council's pledge appeared information showing a list of secular periodicals publishing recommended lists. The council recommended in addition, refusal to patronize objectionable films, that members of churches exert continual pressure on the film industry and the Federal authority for the industry to secure the abolition of block-booking and blind-buying of films by picture exhibitors. The third Sunday in October was set aside as a time to emphasize the program in pulpits.

PROGRESS OF CHURCH ORGANIZATION

United States. — The Massachusetts Federation of Churches merged with the Massachusetts Council of Religious Education in November, 1933, forming the Massachusetts Council of Churches. This year progress had been made in wiping out old financial deficits and planning for an annual budget. Members of the boards of directors of the Greater New York Federation of Churches and the Brooklyn Church and Mission Federation voted for closer cooperation late in the year without actually merging the federations.

Brazil.—The Evangelical Confederation of Brazil was organized June 19, 1934. First efforts leading to the new body were begun in 1903 by a group of missionaries. The first body formed was the Brazilian Evangelical Alliance. In 1910 there was formed the Evangelical Council of Religious Education. Another body, the Brazilian Committee on Cooperation in Christian Work, followed a Congress in 1916. The Federation of Evangelical Churches was organized in 1931. Five denominational bodies met the first half of 1934 and approved the latest body which has a constitution providing for three departments under the Confederation. "(a) the Council of Evangelical Churches of Brazil, for the purpose of publicly representing Protestantism and treating of matters pertaining to inter-ecclesiastical relations; (b) the Council of Cooperation, whose object is to attend to general interests of cooperation in the religious and social field; and (c) the Council of Religious Education, whose end is to promote cooperation specifically in the sphere of religious education."

FOREIGN MISSIONS

Fourteen boards of women in the United States and Canada interested in foreign missions were consolidated in January with the Foreign Missions Conference of North America with which they had previously been affiliated as auxiliaries. The boards were: Women's Executive Board, Seventh Day Baptist General Conference, Women's General Missionary Society of the Churches of God in North America, Woman's Board of Missions for the Pacific Islands, Woman's Auxiliary for the National Council of the Protestant Episcopal Church, Evangelical Women's Union, Evangelical Synod of North America, Women's Missionary Union of Friends in America, American McAll Association (Mission Populaire Evengelique de France), Women's Missionary Society, United Lutheran Church in America, African Methodist Episcopal Zion Church, Woman's Home and Foreign Mission Society, Methodist Protestant Church, Women's Missionary Convention, Auxiliary to the Board of Missions, United Brethren in Christ, Woman's Missionary Association; Woman's Baptist Foreign Missionary Society of Eastern Ontario and Quebec, Woman's Missionary Society of the Presbyterian Church in Canada (Eastern Division) and Woman's Auxiliary to the Missionary Society of the Church of England in Canada.

Cooperative Trials.—A Conference in April, 1934, of the National Christian Council in Manila, Philippine Islands, which brought together representatives of all churches and mission stations there, became a new experiment with cooperation among missionaries outside the United States and led to a proposal that all the work of the denominations represented be unified through a single administrative body. The proposed plan called for holding all missionaries ready for service anywhere in the Islands without reference to denominational affiliations. The boards in Japan representing American denominations agreed to follow the procedure which led to the trial in the Philippines. American missionary officials in December were awaiting a report from a meeting the previous month of the National Christian Council of Japan at which plans for greater cooperation had been discussed. The Philippines Council was formed in 1934, holding its first meeting in New York City on March 23 to assist in coordinating the Philippine work under the new plan. Missions had been previously united in Porto Rico, San Domingo and Iraq, and a committee was set up in Mexico for a similar purpose. British boards were also working to this end in Bengal, India.

Rural Missions.—Twenty missionaries representing nine mission boards and nine mission fields were enrolled in 1934 at the Cornell School for Missionaries, Cornell University. A conference was held June 8-9 on rural missions. A tentative proposal was worked out for cooperative effort in evangelization among rural residents in Japan and sent to the National Christian Council in that country. It was received cordially and taken under consideration.

Research Work.—An annual grant of $10,000 by John D. Rockefeller Jr., to the Missionary Research Library at Union Theological Seminary, New York City, was withdrawn and at the urgent request of missionary officials a new one of $2,500 was substituted for 1934-35. Total gifts by Mr. Rockefeller beginning in 1914 had amounted to about one-third of a million dollars. It was used for equipment and service. The curator was put on part time service and personnel was reduced. Certain office equipment and supplies were also received from the Institute of Social and Religious Research which closed its office at 30 Rockefeller Plaza, New York City and wound up its activities in the early Fall. The Institute had been financed by Mr. Rockefeller since 1921, when it was organized. It had promoted researches into the social significances of religious enterprises.

HOME MISSIONS

A report on home missions covering six years and published in book form in 430 pages as the result of the labors of a joint committee of 22 persons representing the Home Missions Council and the Federal Council of Churches of Christ in America was issued in January. It was presented at the annual meeting of the Home Missions Council and the Council of Women for Home Missions in New York City. In a foreword it was stated that home missions had expanded most during the period of greatest emphasis in America on the importance of denominational differences. A counter-process in recent years had been noted, and the effect of community efforts at cooperation among churches of differing faiths had made itself felt in domestic mission fields. In these areas cooperative agencies were seen to have new significance.

THE ROMAN CATHOLIC CHURCH

By CHARLES A. MCMAHON

EDITOR, *Catholic Action*

CHURCH LEADERSHIP

To present anything like an adequate picture of the activities of the Catholic Church in the year 1934 would be clearly impossible in an article of this length. As a universal institution, the Catholic Church appeals to the intellect and imagination of many who do not recognize her authority. Especially has this been true in the past year of turmoil and crises among the nations of the earth when, under the guidance of Pope Pius XI, the Church has given leadership in pointing to the underlying causes of world unrest and the means to remove them. This leadership has evoked not only the response in energetic action of Catholics but has directly influenced the thought and conception of non-Catholics everywhere.

NATIONAL CATHOLIC WELFARE CONFERENCE IN THE UNITED STATES

In this country the work of the N.C.W.C. during 1934, has been notable in the providing of adequate care for Catholics in Civilian Conservation Camps; the obtaining of Federal Emergency Relief funds to aid college students in 105 Catholic institutions of higher education; the providing of information and advice to religious and welfare agencies and institutions affected by the national recovery program and the obtaining of recognition of charitable and educational institutions as having a special status under the National Recovery Act; the extension of work in religious vacation schools in rural areas; valuable services to immigrants and aliens; a general stimulation and coordination of Catholic Action through the recently formed N.C.W.C. Department of Catholic Action.

The episcopal chairman of the N.C.W.C. Administrative Committee in making his report to the general meeting of the bishops in November, stated: ''We believe the most important work is safe-guarding the Christian principles in our present Federal legislation; endeavoring to give them voice, place and recognition in the actual laws and legislation of our Federal Government, and down through the states and the cities and the counties.''

In acknowledging the reports of the N.C.W.C. of the previous year Cardinal Serafini, Prefect of the Sacred Consistoral Congregation, had ''observed with pleasure the ever increasing activity of the Conference in the religious as well as the social field'' and praised the pastoral solicitude of the bishops ''in promoting the glory of God and the salvation of souls.''

Before the Senate Committee of Education and Labor the Administrative Committee defended the inherent right of workers to form labor unions and bargain collectively. Prominent non-Catholic bodies and individuals, including national medical organizations and eminent physicians, together with Catholics made known to congressional committees their unchanging opposition to birth control. The N.C.W.C. also published a series of important articles on the question of sterilization.

MOTION PICTURE CRUSADE

The past year saw the formation in the United States of the Legion of Decency which is ''to be maintained as a permanent protest against everything in the moving picture which is subversive of morality.'' In this crusade Protestants and Jews have joined as vigorously as Catholics to bring about clean motion pictures. In December, millions of Catholics publicly renewed the pledge of the Legion. The crusade has extended to many foreign countries.

ANNIVERSARIES

The tercentenary of the Founding

of Maryland and the establishment of religious liberty in this country were fittingly celebrated by great public demonstrations the chief of which was held in the Baltimore stadium and the central event of which was a Pontifical High Mass. Similarly was celebrated in the Cathedral of SS. Peter and Paul in Philadelphia a Pontifical Mass marking the 150th anniversary of the ratification of the Treaty of Paris ending the War of Independence.

STATISTICS OF THE CHURCH IN THE UNITED STATES

Population.—In the matter of statistics the *Official Catholic Directory* for 1934, stated the Catholic population of the United States to be 20,322,594, an increase of 54,191 over 1933. There were some 8,000 Catholic elementary schools, 2,200 high schools, 22 universities and 150 colleges accommodating altogether 2,600,000 students, and staffed by 84,500 teachers.

Clergy.—There were appointed in 1934, two more archbishops bringing their number to eighteen, and five more bishops making their number 107. The number of priests was given as 29,619. More than 1,500 United States priests are on foreign missions. Over a period of ten years Catholics of this country have contributed $9,767,223 to the Propagation of the Faith. More than $6,000,000 was expended by the St. Vincent de Paul Society alone and several millions more by the various agencies of Catholic charities during 1934, in relief work.

Publications.—Despite the depression several new Catholic publications were established including newspapers in five dioceses. There are now somewhat over 300 Catholic publications issued in the United States.

Anniversaries. — Notable events were the celebration of the fiftieth anniversaries of their ordination by His Eminence, William Cardinal O'Connell, Archbishop of Boston, and of the Most Reverend John J. Glennon, Archbishop of St. Louis, and the 25th anniversary of the consecration of His Eminence, George Cardinal Mundelein, Archbishop of Chicago.

Converts.—Among notable receptions into the Church were Ivar Tidestrom, noted biologist of the U. S. Department of Agriculture, Brig. Gen. Theodore A. Bingham; William Hard, well known journalist, and the Rev. Barnabas Skiuhushu, archimandrite of the Russian Orthodox Church.

PAPAL RELATIONS WITH OTHER GOVERNMENTS

General.—To those inside the fold, the history of 1934, has brought comfort and spiritual strength though tinged with sadness. Despite disturbing conditions in our own land and elsewhere there has been, as will be seen, a notable advance towards the Peace of Christ in the Kingdom of Christ not only in the hearts and lives of Catholics but of those outside the immediate jurisdiction of the Church. Anxious to promote this reign of peace which will contribute to the temporal as well as the spiritual wellbeing of peoples, the Holy See, through concordats, has endeavored to reach a satisfactory understanding with several governments on the position of the Church in their respective countries. Through such concordats it seeks to bring about a better attitude towards the Church in the fulfillment of her divine office and in her relations with the faithful; to remove obstacles in the way of the growth of the Church and the spiritual development of her adherents; and to combat anti-religious forces which threaten not only the welfare of the Church but the security of the State itself. In turn does the Church promote religion, social order and loyal devotion to lawfully constituted authority. As the years go by, more and more countries realize the need and value of religion and sound moral discipline in a well-governed people, particularly in the face of extreme movements towards the Right and the Left, and are seeking to further that end where possible by concordats with the Holy See.

Austria.—On May 1, 1934, such a concordat which had been concluded the previous year was ratified between the Holy See and Austria. That country, anxious to bring order out of chaos, drew up a new constitution acknowledging as its first principle the Christian doctrine that "all rights proceed from God." The world was deeply grieved by the assassination of the Catholic Chancellor of Austria, Engelbert Dollfuss, whose violent death like that of the King of Yugoslavia and the French foreign minister at Marseilles threatened for a time the precarious peace of Europe. Early in 1934, a reaction to the work of the Radical Socialists, which had led many away from the Church, set in and much was learned of the methods used by the Austrian anti-clericals to achieve their anti-religious ends.

Germany.—Negotiations have continued with Germany to clarify the application and fulfillment of the concordat signed in 1933, which negotiations have been rendered difficult and even critical by the German government's attitude towards religion generally. It is the view of the Church that a government violates the Divine Law when it attempts to absorb into itself authority and control over religion, considering the State as prior in rights to the Church and the Church as existing and legislating within limits defined by the State. When the sovereign rights of one religion are thus violated so are the rights of all. Anti-religious elements continued to undermine Germany's confidence and good-will both at home and abroad. At the very beginning of the past year an unsuccessful attempt was made upon the life of Cardinal Faulhaber, Archbishop of Munich. In the tragic days at the end of June many Catholics lost their lives.

Yugoslavia and Danzig.—Again, in Yugoslavia efforts have notably progressed through the year to conclude a concordat with that country. The Senate of the Free State of Danzig has expressed to the Holy See its desire to conclude a concordat.

Spain. — The religious situation and position of the Church in Spain have been matters of grave concern in the turmoil following revolution. It is worthy of note that in June the Spanish Minister of Foreign Affairs was sent to Rome to enter into negotiations with the Holy See.

Italy. — Less important perhaps but indicative of continued satisfactory relations between the Holy See and Italy were the conventions signed concerning the jurisdiction of courts in certain cases, hospitalization in Italy of citizens of Vatican City and the operation of the Vatican City railway. Addressing the Italian parliament in April, the King of Italy stated that the treaty and concordat settling the Roman question "remains an essential element of Italian history."

Russia.—In Russia the war on religion continued, more and more churches being closed or turned into granaries, storehouses or Godless museums. A cathedral was pulled down on the pretext that it stood in the way of traffic. The arrest and imprisonment of priests continued while others were deported for preaching in public. During 1934, many priests died as the result of hardships and suffering endured. Cardinal Innitzer, Archbishop of Vienna, continued his work for relief of famine widespread throughout the Soviet Union.

Albania. — Another center of tragic unrest was Albania where a Mohammedan outbreak caused the death of several Christians, the closing of Catholic schools, and the dismissal of some hundreds of Christians from their official positions.

China. — Political insecurity in China led to the seizure by bandits of several European Catholic missionaries. Two missionary priests were slain by bandits and another priest, from the United States, by Communists.

THE CATHOLIC CHURCH IN MEXICO

During 1934, Mexico has again become the scene of a tyranny and persecution of religion paralleled only in Red Russia. A government clique utterly unrepresentative of the majority of the Mexican people continues its depredation of the Church and its hostility to all religion. All religious societies are denied the right of corporate legal existence; all clergymen are denied the right of franchise; all churches are denied the right to property and endowment; means of education for the ministry are denied; neither a native nor a foreign born clergy is permitted; freedom of the press is denied and secular papers are prohibited from criticizing officials or acts of government in the matter of these restrictions. Today there are no priests in the states of Tabasco, Zacatecas, Sonora, Chiapas, Vera Cruz, Campeche, Queretaro. In Mexico City there is only one priest to more than 50,000 persons. Most of the archbishops and bishops have been expelled. As to the aim of the Mexican Revolution, General Calles in July last, said: ''We must now enter and take possession of the consciences of the children, of the consciences of the young, because they do belong and should belong to the Revolution.'' A storm of protest swept over the United States when the United States Ambassador to Mexico quoted and approved these specific words of General Calles, stating: ''The spirit of Mexico of this day was clearly and succinctly stated last week by General Calles in as brief a sentence as that employed by Jefferson decades ago.''

At their meeting in November, 1934, the Archbishops and Bishops of the United States issued a statement deploring this anti-Christian tyranny directed against not merely Catholics but against all religion. They said: ''War on religion has extended beyond national boundaries through organized propaganda in many countries. . . . No upholder of the rights of man and of liberty of conscience can view complacently the exercise of such tyranny even though it be in a country other than our own. . . . The full consequences of the persecution of the Church and of Catholics in Mexico can scarcely be foreseen at the present time. They cannot but eventually be very grave. . . . in the present turmoil of the world and distress of nations the basic truths of religion, from which has sprung the stability of nations, are flouted and denied by those who seek absolutism in government. The struggle, therefore, which arises from the persecution of the Church in Mexico today is an illustration of a crisis which may have far-reaching consequences.''

In October last, the National Conference of Jews and Christians in a public statement declared: ''We are especially concerned at the present juncture over the situation in Mexico where many unprejudiced observers report that in the endeavor to achieve social justice and political reforms, religious liberty is being imperilled. . . . we desire to give our moral support to those who labor for freedom of worship there, and to express the anxiety with which we view every threat to liberty of conscience and the freedom of the soul.''

Of press comments, the following are typical. The *Philadelphia Record* observed ''there is unmistakable evidence that the Mexican dictatorship intends to stop at nothing in its battle to rip out the religion which is deeply rooted in the hearts of the people.'' The same paper declared that ''the real menace to Mexico's revolutionary ideals and program comes not from the Catholic Church but from Calles and his henchmen.'' ''Whatever has been taken from the Church in Mexico'' declared the *Portland Oregonian,* ''appears to have gone to the revolutionary adventurers in charge of the government,'' while the *New York Post* pointed out that ''suspicion grows that anti-Catholicism is being used as a red herring to cover up the failings of the government.'' That the Catholic spirit is still living and active in Mexico is shown by the large meeting held in the suburbs of Mexico City to protest publicly against the killing by the Red Shirt organization on the last day of December, of five Catholics as they emerged from church in the suburb of Coyoacan.

WORLD PROGRESS

Turning to a brighter and more hopeful picture, the condition of the Church in 1934, in many countries in eastern and western hemispheres gives cause for satisfaction and hope. No one looks for the millenium and the history of the world will always be the history of the struggle between the forces of good and evil. The pages of history are replete with wars, revolutions, social and political chaos, eras of peace, and suffering and martyrdom in the life of the Church. So while we see religion crushed and bleeding in some countries we find it at the same time revivified and hopeful in others.

Making a rapid survey over the world in countries as far apart as Canada and Australia, the Church has been active and progressive. In Canada, 400 years after its discovery, Catholics now number 4,285,388 or 42 per cent of the population. In Australasia, where the Catholic population is 22 per cent of the total population of 6,623,754, the year 1934 was marked by a great national Eucharistic Congress which brought together more than half a million souls, attended by a Papal Legate in the person of His Eminence Joseph Cardinal MacRory, Archbishop of Armagh and Primate of Ireland. In Scotland, according to a survey made by the non-Catholic Scottish Churches' Council, the Catholic population continued to increase during the year. In India, the number of Catholics, which 50 years ago was less than 1,500,000, had risen to almost 3,500,000 in the past year. In Indo-China, where Catholics number 1,392,731, we find the first Plenary Council of the Church ever held in that country. The Catholic population of Africa has risen to almost 5,000,000 of which 700,000 have come into the Church in the past two years. For the first time there was appointed by Pope Pius XI, in the past year, an Apostolic Delegate for the whole of Africa. The Catholic population of Japan has continued to increase, though slowly. In China are now 2,623,560 Catholics, an increase of 550,111 in ten years, of which 69,547 were added in 1933, the latest figures available. Swinging back into Europe we find in Lithuania, part of old Russia, the first synod of the Church held there in 200 years, with a national Eucharistic Congress attended by 100,000 Catholics and the building of a great church as a national monument to the achievement of Lithuania's freedom from foreign domination. In Yugoslavia, Catholics are the second largest group in the country comprising 5,217,847 souls or 43 per cent of the total population, of which 1,200,000 are in Slovenia, forming 96 per cent of the population and about 2,000,000 in Croatia, being 80 per cent of the total. In Yugoslavia, a radical movement has been on foot seeking to prevent religious education in the public schools. In Czechoslovakia, the Church sought to be the bridge between the two groups of people in that country pointing out that ''cooperation between Czechs and Slovaks is possible only on the basis of the Catholic Faith.'' The Catholic bishops sent a memorandum to the government asking that crucifixes be placed again in the state schools as before the War and that the practice of prayer before classes be resumed.

INTERNATIONAL EUCHARISTIC CONGRESS

An outstanding international event in 1934, was the International Eucharistic Congress held at Buenos Aires attended by His Eminence Eugenio Cardinal Pacelli, Papal Secretary of State and personal representative of Pope Pius XI, and presided over as honorary president by President Justo who was decorated by the Pope with the Supreme Order of Christ. The Congress brought together more than 1,000,000 people, pilgrims from all parts of the world. In the past year was commemorated the erection of the famous statue ''Christ of the Andes'' on the border between Argentine and Chile, marking the cessation of hostilities between those countries fifty years ago.

THE CHURCH IN SOUTH AMERICA

Five South American bishops have now been active in the effort to bring peace in the present struggle between Bolivia and Paraguay. The Bolivian government bestowed the Grand Cross of the Order of the Condor of the Andes upon the Most Rev. Luigi Centoz, Apostolic Nuncio, for his work in bringing about an exchange of the sick and wounded in the conflict. In Brazil, a new Constitution was enacted in 1934, eliminating many provisions of its predecessors antagonistic to religion. Here also was held a First

Catholic Congress on Education to study educational problems in the light of Christian teaching. Uruguay too adopted articles in its Constitution guaranteeing freedom in education and providing financial assistance from the State.

THE HOLY YEAR

The year, 1934, marked the closing of the Holy Year at Rome commemorating the 19th centenary of the Redemption and of the Institution of the Holy Eucharist. The privileges of the Holy Year were extended to the whole world until April, 1935. It is typical of the trend of the times that the House of Representatives of Colombia adopted a resolution "to unite in this homage which is being rendered this year to Him Who is the center of the history of humanity, the instigator of peace between individuals, and the restorer of true liberty."

CATHOLIC ACTION

During the year gone by, the movement for Catholic Action to bring Christian principles into every domain of life, both of the individual and of society has continued in many countries—United States, England, South Africa, Australia, Hungary, Poland, Japan, and other lands. In Spain, Catholic Action has been vigorous despite the revolution. Fifteen thousand Catholic men and youths met under the seventh Regional Assembly of Catholic Youth of Galicia while 10,000 attended a convention of the *Juventud de Accion Popular* at Covadonga. The Central Union of Catholic Action set on foot a movement covering intensive social and religious study over a year's period. The organizations for Catholic Action set up by the bishops in England, Australia and South Africa have been modelled largely upon the plan of the National Catholic Welfare Conference in the United States.

NECROLOGY

Death claimed several eminent Catholics in this and other countries including the Most Rev. Francis Mary Redwood, Archbishop of Wellington, New Zealand, the oldest Catholic bishop in the world, the Rev. Charles L. O'Donnell, president of Notre Dame University, the Rev. Dom Bede Jarrett, O.P., and Sir Edward Elgar, famous English composer. M. Raymond Poincaré, former President and Premier of the French Republic, received the Last Sacraments and died in the bosom of the Church.

THE EASTERN CHURCH

By Robert Frederick Lau

Counselor on Ecclesiastical Relations, Protestant Episcopal Church

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ASSASSINATION OF ARCHBISHOP TOURIAN

On the morning of Dec. 24, 1933, in a crowded little Armenian church in New York City, a procession of acolytes and priests were escorting the stately Archbishop Leon Tourian to the altar. Suddenly some of the worshipers on either side of the procession broke into it, the prelate's mitre and staff fell to the ground and he himself collapsed, blood staining his elaborate vestments. In a few moments he was dead.

This assassination of an ecclesiastic focused the attention of America as no other happening on the problems confronting Old World churches even in the New World. The short-lived independent Armenian Republic had given place to benevolent Russian rule. For the first time in centuries the Armenian National Apostolic Church experienced a comparative degree of freedom. Delegates from all over the world were allowed to gather in Etchmiadzin to elect a new Catholicos in 1933. The grateful Church made prayer for the Soviet regime a regular part of the Sunday liturgy. Therefore Archbishop Tourian, British subject, was denounced as a ''bolshevik,'' and misguided fanatics murdered him.

The year, 1934, began for the Armenians in America with a requiem celebrated by the Vartabed Mampré Calfayan on Jan. 1 in the Protestant Episcopal Cathedral of St. John the Divine, New York. About 15,000 people gathered in and about the edifice and for hours after the end of the service men, women and children were passing the casket which held the body of a martyr of their church.

OBSERVANCE OF THE "YEAR OF THE HOLY TRANSLATORS"

Monsignor Calfayan has accepted appointment as acting prelate. In December, 1934 he joined with Protestant Armenians and representatives of American Protestant bodies in celebrating the 1,500th anniversary of the translation of the Bible into Armenian. The American Bible Society sponsored the meeting which was addressed by Dr. John H. Finley. Perhaps the observance of the ''Year of the Holy Translators,'' as it has been officially designated by the Catholics Khoren of Etchmiadzin, will mark a reunion of separated groups.

PROPOSED FORMATION OF AN AMERICAN ORTHODOX CHURCH

It is inevitable, if unfortunate, that the nationalistic spirit which asserted itself so vehemently during and after the World War should find expression in ecclesiastical circles. It is reflected among foreign-language speaking people in America. In fact, there can be little if any doubt that politicians in the old countries stir up their compatriots in America. In order to be free, to some degree, from political changes abroad, the leaders of the various national Orthodox Churches in the United States have contemplated the formation of an American Orthodox Church. A few years ago the Syrian Bishop Aftimios (under the jurisdiction of the Russian Orthodox Metropolitan Platon) actually founded such a church and declared himself its head. His action was ignored by Orthodoxy in this country and abroad and met with practically no success.

The national aspirations of the Ukrainian section of Russia are evident in this country. Many Uniat priests have established independent Ukrainian parishes. The Autocephalos Ukrainian Orthodox Church is maintaining itself here under the leadership of Archbishop John Theodorovich. A more significant movement began about three years ago, when a group of Ukrainian priests and parishes united under the leadership of the Rev. Joseph A. Zuk and petitioned the Ecumenical Patriarch for recognition as a Ukrainian Orthodox Church and for the consecration of their leader. They could not accept Archbishop Theodorovich because he had not received episcopal consecration. Recognition was duly received from Constantinople and the Archbishop of the Greek Orthodox Church in America, Athenagoras, proceeded to arrange for the consecration of Dr. Zuk.

Unfortunately, charges were made against the bishop-elect which, if true, would make him ineligible. They were forwarded to Constantinople. But the impatient Ukrainians did not await a decision. Dr. Zuk secured consecration at the hands of Aftimios, thereby placing himself outside the pale of recognized Orthodoxy. However, shortly before his death in February, 1934, he repented and made his submission to Archbishop Athenagoras. It is said that all but one of his clergy consented to recognize the Greek Archbishop. For a Ukrainian priest in America to recognize the jurisdiction of a Russian bishop is tantamount to treason!

A real understanding of the importance of events transpiring in Russian Orthodox circles is impossible without some knowledge of the rather complicated background. Fortunately this has been thoroughly described in the previous issue of THE AMERICAN YEAR BOOK.

DEATH OF BISHOP KEDROVSKY

Early in 1934, there occurred the death of the Rt. Rev. John Kedrovsky. To date no one has been appointed to succeed him as bishop. His son is acting as Administrator. The latter's marriage after ordination has made his position as an Orthodox priest questionable.

ARCHBISHOP PLATON'S DEATH AND HIS SUCCESSOR

On the twentieth of April 1934, Archbishop Platon died. Formerly Metropolitan of Odessa, this picturesque and able leader commanded the respect and loyal allegiance of the great majority of Russian Orthodox in this country. During the last two years of his life his illness led many to ask what would become of the Church after his death. It was feared that it would split into several factions and thus add to the existent rivalry and confusion. On the other hand there were several signs, such as the formation of the Federated Russian Orthodox Young People's Clubs, which ignore divisions, that the day for the reunion of all factions was drawing near.

All doubt was dispelled by the fact that a *Sobor* (convention) of Russian priests, formerly under Platon, met in Cleveland in November, 1934 and not only ratified the bishop's choice of the Rt. Rev. Theophilus Pashkovsky of San Francisco as Archbishop but declared him successor to Platon and Metropolitan of the Russian Orthodox Church in America, temporarily autonomous. The new Metropolitan, a friend of the late Patriarch Tichon during the latter's imprisonment, is an attractive, spiritual churchman, modest but firm.

The generous action of the Synod of Russian emigre bishops settled in Sremski-Karlovci, Jugoslavia, is so unusual in the form in which it was expressed that a full quotation of the resolution adopted Sept. 12, 1934 is in order: "As a testimony to the brotherly forgiveness extended to the deceased Metropolitan Platon by the *Sobor* and as testimony to complete reconciliation with him; and in order to smooth the paths which lead to the restoration of the unity of the church in America; the *Sobor* has resolved to lift the Interdict which was imposed on the bishops and clergy of the so-called Platon-jurisdiction." Nevertheless the synod sent bishop Vittally to the United States to assist their other representative Tichon.

The leader of the North American Carpatho-Russian Orthodox Diocese, Bishop Adam, is continuing the friendly negotiations begun shortly before the death of Metropolitan Platon.

MOVEMENTS TOWARD UNITY

The several movements towards unity among the Russians in America derived strong support and inspiration from the visit of the Very Rev. Serge Bulgakoff, dean of the Russian Theological Academy in Paris, to this country. In addition to his delivery of the Annual Hale Memorial Sermon (Social Teaching in Modern Russian Orthodox Theology) at the Seabury-Western Seminary in Evanston, Ill., he lectured in a large number of churches and other institutions between Chicago and Boston.

Archbishop Benjamin, representative of the Acting Locum Tenens of the patriarchate of Moscow, is still endeavoring to secure recognition, with scant success.

A final note of encouragement may be added by reference to the negotiations being conducted by the followers of the late Metropolitan Platon and the Greek Archbishop Athenagoras, looking towards the founding of a jointly conducted Orthodox Seminary.

Archbishop Athenagoras himself has been untiring in his active leadership of the Greek Orthodox Church in America, with but little interference from a rival group of bishops deriving their orders from Aftimios and his successor, Sophronios.

XVII. RELIGION AND RELIGIOUS ORGANIZATIONS

JUDAISM AND JEWISH COMMUNAL AFFAIRS

By Bernard G. Richards

Director, Jewish Information Bureau, New York

TRAGIC PLIGHT OF GERMANY JEWRY

Continued Persecution.—The persecution of the Jewish citizens of Germany by the National Socialist regime with which we began our review last year continued to be the all-absorbing concern of the Jews of the United States and other lands during 1934. The abrogation of their rights of citizenship and of equality before the law as ordained by Paragraph four of the Nazi platform, the elimination of Jews from public office, from the professions and faculties of universities in accordance with the restrictions placed upon all non-Aryans, the official efforts and schemes of coordination calculated to undermine their position in the economic and commercial life of the country, these together with the repressions imposed upon all liberal or dissident elements, including labor organizations, the churches, etc., have made the life of Jews in Germany almost intolerable and a cause of ceaseless anxiety to their brethren in other lands, as indeed to both Jews and non-Jews outside of Germany who have placed their hopes in human progress and the advancement of humanitarian and democratic ideals.

National Protests.—Following the series of protests and demonstrations held in New York and other cities which were addressed by Jewish and non-Jewish leaders of public opinion, mass meetings of indignation were held in many countries and the parliaments of a number of nations, including the United States, England, France and Belgium, voiced the sense of outrage at the cruelties and injustices practiced by the Hitler Government.

League of Nations Action.—The sad plight of the Jews in Germany and of Jewish and non-Jewish refugees driven out of that country moved several sessions of the League of Nations in Geneva to give attention to this unprecedented situation. In the case of an open violation of the treaty intended to protect the rights and minorities as affecting upper Silesia, Germany was definitely rebuked by the assembled representatives of the nations, and condemnation implied and open was again directed to Germany when the conditions affecting the refugees, wandering through all parts of Europe, became so acute as to invoke the consideration of the League of Nations. Subsequently the League set up an international commission to deal with the problems of the refugees, and Professor James G. McDonald of New York was appointed Chief High Commissioner of this body. Under direction of this Commission efforts have been made to assist the refugees and to enable them to settle and to find subsistence in different lands. To date approximately 80,000 persons of the Jewish race and faith have been driven out of Germany. Among them are many men and women whose achievements in science, literature and the arts has shed luster on the erstwhile fame of Germany as a cultured nation.

Refuge in Palestine.—About 40,000 of these refugees have entered Palestine, many bringing with them considerable means and much industrial skill and enterprise. This has given considerable impetus to the flourishing industry and commerce which has lately been developing in connection with the Jewish re-settlement of Palestine. The Zionist movement has accordingly come to the fore as a dominant constructive force in Jewish life, the Zionists seeing vindication of their ideal in the collapse of false theories of security such as had heretofore been propounded by Jewish leaders in Germany. To care for the needs of the refugees, large relief funds had to be raised in this and other lands.

NATIONAL COUNCIL OF JEWISH FEDERATIONS

Scope of Activities.—Problems affecting Jews at home and abroad, with special reference to the situation in Germany were reviewed and discussed at the annual conference of the National Council of Jewish Federations and Welfare Funds, William J. Shroder, President, held in New York toward the end of the year. The constituent bodies of this Council coordinate local activities and raise funds for the different institutions in each large community. More recently these Federations have extended the scope of their activities beyond the field of philanthropy and social welfare and have, in addition to their previous tasks, given assistance to religious and educational activities. The leaders of the Federations are also active in raising funds in each city for objects of a national and international scope. Hence, the Council has planned a number of conferences and discussions, the last gathering presenting a program wider in outline than any previous assembly.

Educational and Cultural Work.—The more positive aspects of Jewish educational and cultural work and more comprehensive organization of the Jewish community was stressed in a notable address by Prof. Mordecai Kaplan of the Jewish Theological Seminary of America and of the Society for Advancement of Judaism, whose outstanding book, *Judaism as A Civilization,* just issued, is regarded as an epoch-making contribution to modern Jewish thought. Another feature of this conference sponsored locally by a committee headed by Felix M. Warburg was the addresses of Prof. James G. McDonald who, as the leader of the relief work in behalf of the refugees from Germany, received the annual American Hebrew award for services in the advancement of tolerance and good will between different creeds and races. Dr. Bernard Kahn reported on the work of relief carried on abroad by the American Joint Distribution Committee, and Dr. Joseph A. Rosen gave an account of the efforts to place Jews on the land in Soviet Russia.

Resettlement in Palestine.—The Administrative Committee of the Jewish Agency for Palestine made up of the Zionist and non-Zionist elements met for the first time in this country toward the end of December and this brought to the United States a number of distinguished Jewish visitors including Neville Laski, K. C., Chairman of the Board of Deputies of British Jews. The proceedings of this meeting brought to light the remarkable progress which is now being achieved in the resettlement of Jews in Palestine. Simultaneous with the entrance of large numbers of emigrants into the country there has developed a more friendly basis of cooperation between the representatives of the Mandatory Power and the spokesmen of the Zionist World Organization. Improvement has also taken place in the relations between Jewish and Arab populations of the country. The present favorable economic conditions in the country is best exemplified by a shortage of labor which has repeatedly been reported.

RELIGIOUS EDUCATION

Raising of Funds. — Under the heading of Religious Education, the Jewish Educational Association of New York, Otto A. Rosalsky, President, which encourages the establishment of and endows various schools, has campaigned and secured funds for its activities, these being paralleled by different bodies in a number of large cities, West and South. In some cities, like Chicago, Cleveland, Detroit, St. Louis, San Francisco, etc., there exist colleges or schools for the training of religious teachers for the requirements the various Hebrew and religious schools in different communities.

Teacher and Rabbi Education. — The four large Jewish colleges for training of rabbis and teachers of religion have witnessed a year of considerable activity and progress, two of these institutions, namely the Hebrew Union College in Cincinnati, Dr. Julian Morgenstern, President, and the Jewish Theological Seminary of America, New York City, Dr. Cyrus Adler, President, have, as heretofore, made continual additions to the remarkable collections of Jewish books and manuscripts in their libraries. The newer Jewish Institute of Religion, New York City, Dr. Stephen S. Wise, President, has entered upon its eleventh year of activities.

Yeshiva College.—The ultra orthodox Yeshiva, or Isaac Elchanan Seminary, Dr. Bernard Revel, President, has gone ahead with its plan of conducting the old-time Yeshiva along the lines of an up-to-date College, which combines a Jewish and Talmudic education with a modern course of college studies and, for the first time, creates a college modeled along parochial lines. The new building is located at Amsterdam Avenue and 184th Street, New York City.

Youth Organizations.—The emphasis placed in recent years upon the need of educational work among Jewish youth, has found a response in the formation of a number of youth organizations and cultural activities, and these bodies, like the Young Judea, Young Israel, Avukah, Masada, Junior Hadassah, Menorah, Intercollegiate Association, Hillel Foundation, etc., have continued their different activities.

Jewish Publication Society.—Identified with these interests is the work of the Jewish Publication Society of America, with offices in Philadelphia, Simon Miller, President, which is now passing into its forty-fourth year, and which has, in the course of its history, built up a considerable and significant library of books in the English language, relating to Judaism, Jewish life and history.

PROTECTION OF MINORITIES

Work for the protection of Jewish Minorities in Eastern Europe and the various forms of discrimination against the Jewish race, has, as heretofore, been carried forward by the American Jewish Committee, Dr. Cyrus Adler, President, The American Jewish Congress, Bernard S. Deutsch, President, with occasional cooperation of the Independent Order B'nai B'rith, Alfred M. Cohen, President, and other organizations. The American Jewish Congress is continuing to agitate for a Jewish World Congress which has been discussed at several preliminary conferences in Europe and for which a number of tentative dates have been fixed and subsequently abandoned, owing to the attitude of certain offspring groups.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

NATIONAL CHURCHES

American Theosophical Society, "Olcott," Wheaton, Ill.

American Unitarian Assn., 25 Beacon St., Boston, Mass.

Board of Direction of the General Synod of the Reformed Church in America, 25 E. 22nd St., New York City.

Christian Science Church, 11 W. 42nd St., New York City.

Congregational Christian General Council, 287 Fourth Ave., New York City.

Freethinkers' of America, Inc., 317 W. 34th St., New York City.

Friends' General Conference of the Religious Society of Friends, 1515 Cherry St., Philadelphia, Pa.

General Conference of Seventh-Day Adventists, 6840 Eastern Ave., N. W., Takoma Park, Washington, D. C.

General Council of the Presbyterian Church in the U. S. A., 156 Fifth Avenue, New York City

National Lutheran Council in America, 39 E. 35th St., New York City.

Nationalist Spiritual Assn., 600 Penn Ave., S. E., Washington, D. C.

Northern Baptist Convention, 152 Madison Ave, New York City

Society for Ethical Culture of New York, 2 W. 64th St., New York City.

Union of American Hebrew Congregations, Merchants' Building, Cincinnati, Ohio.

Union of Orthodox Jewish Congregations of America, Amsterdam Ave. & 186th St., New York City.

United Lutheran Church in America, 39 E. 35th Street, New York City.

United Synagogue of America, Broadway and 122nd St., New York City.

Universalist General Convention, 16 Beacon St., Boston, Mass.

Vedanta Society, 34 W. 71st St., New York City.

Volunteers of America, 34 W. 28th St., New York City.

INTERNATIONAL ORGANIZATIONS

Association for the Promotion of Christian Unity, Chamber of Commerce Bldg., Room 412, Indianapolis, Ind.

Baptist World Alliance, Bates College, Lewiston, Me.

Central Bureau of Evangelical Churches in Europe, 105 E. 22nd St., New York City.

Committee on Cooperation in Latin America, 254 Fourth Ave., New York City.

Committee on Friendly Relations Among Foreign Students, 347 Madison Ave., New York City.

Continuation Committee of World Conference on Faith and Order, P. O. Box 226, Boston, Mass.

Ecumenical Methodist Conference, 720 Omaha Bank Building, Omaha, Neb.

International Assn. of Daily Vacation Bible Schools, 100 E. 42nd St., New York City.

International Assn. for the Promotion of Liberal Christianity and Religious Freedom, 25 Beacon St., Boston, Mass.

International Congregational Council, 287 Fourth Ave., New York City.

International Evangelistic Bureau of the U. S. A., 1111 Walnut St., Cairo, Ill.

International Society of Christian Endeavor, 41 Mt. Vernon St., Boston, Mass.

Lutheran World Convention, 39 E. 35th St., New York City.

Near East College Assn., Inc., 18 E. 41st St., New York City.

Religious Education Assn., 59 E. Van Buren St., Chicago, Ill.

Universal Christian Council on Life and Work, 105 E. 22nd St., New York City.

Western Section of Alliance of Reformed Churches Throughout the World Holding the Presbyterian System, 1012 Witherspoon Bldg., Philadelphia, Pa.

World Student Christian Federation, 347 Madison Ave., New York City.

World Sunday School Assn., 1 Madison Ave., New York City.

World Unity Foundation, 4 E. 12th St., New York City.

INTERCHURCH ORGANIZATIONS

American Sunday School Union, 1816 Chestnut St., Philadelphia, Pa.

Chaplain's Aid Assn., 401 W. 59th St., New York City.

Church Peace Union, 70 Fifth Ave., New York City.

Conference of Theological Seminaries and Colleges in the U. S. A. and Canada, Lancaster, Pa.

Council of Church Boards of Education, 111 Fifth Ave., New York City.

Epworth League of the Methodist Episcopal Church, 740 Rush St., Chicago, Ill.

Federal Council of Churches of Christ in America, 105 E. 22nd St., New York City.

Fellowship of Christian Cooperation, 50 W. Broad Street, Columbus, O.

Fellowship of Faiths, 315 Fourth Ave., New York City.

Fellowship of Reconciliation, 2929 Broadway, New York City.

Free Church of America, 25 Beacon St., Boston, Mass.

National Council of Protestant Episcopal Churches, 281 Fourth Ave., New York City.

Threefold Movement, 315 Fourth Ave., New York City.

AUXILIARY ORGANIZATIONS

Catholic Church Extension Society of the U. S. A., 180 N. Wabash Ave., Chicago, Ill.

Catholic Guardian Society, 485 Madison Ave., New York City.

Catholic Protective Socity, 477 Madison Ave., New York City.

Church League for Industrial Democracy, 154 Nassau St., New York City.

Community Church Workers of the U. S. A., 1302 Chicago Temple, 77 W. Washington St., Chicago, Ill.

Institute of Social and Religious Research, 30 Rockefeller Plaza, New York City.

Lord's Day Alliance, 156 Fifth Ave., New York City.

National Conference of Jews and Christians, 105 E. 22d Street, New York City.

Woman's Christian Temperance Union, Evanston, Ill.

Woman's National Sabbath Alliance, 156 Fifth Ave., New York City.

Young Men's Christian Assn., 347 Madison Ave., New York City.

Young Men's Hebrew Assn., 71 W. 47th St., New York City.

Young Women's Christian Assn., 600 Lexington Ave., New York City.

Young Women's Hebrew Assn., 71 W. 47th St., New York City.

RELIGIOUS PUBLICATIONS

American Baptist Historical Society, Upland Ave., Chester, Pa.

American Baptist Publication Society, 1701 Chestnut St., Philadelphia, Pa.

American Bible Society, Bible House, New York City.

American Tract Society, 7 W. 45th St., New York City.

Chicago Tract Society, 440 S. Dearborn St., Chicago, Ill.

Gideons, 202 S. State Street, Chicago, Ill.

National Testament and Tract League, 200 Kellogg Bldg., Washington, D. C.

Pocket Testament League, 156 Fifth Ave., New York City.

Religious Education Assn., 308 N. Michigan Ave., Chicago, Ill.

Society for the Propagation of the Faith, 462 Madison Ave., New York City.

MISSIONARY

Agricultural Missions Foundation, 419 Fourth Ave., New York City.

American Board of Commissioners for Foreign Missions, 14 Beacon St., Boston, Mass.

American McAll Assn., 112 S. 16th St., Philadelphia, Pa.

American Mission to Lepers, 156 Fifth Ave., New York City.

Christian and Missionary Alliance, 260 W. 44th St., New York City.

Committee of Reference and Council, 419 Fourth Ave., New York City.

Council of Women for Home Missions, 105 E. 22nd St., New York City.

Federation of Women's Boards of N. A., 419 Fourth Ave., New York City.

Home Missions Council, 105 E. 22nd St., New York City.

International Missionary Council, 419 Fourth Ave., New York City.

Missionary Education Movement of the United States and Canada, 150 Fifth Ave., New York City.

National Council of Jewish Women, 625 Madison Ave., New York City.

Near East Relief, 149 Fifth Ave., New York City.

Student Volunteer Movement for Foreign Missions, 254 Fourth Ave., New York City.

Woman's Union Missionary Society, 67 Bible House, New York City.

PART SIX

SCIENCE—PRINCIPLES AND APPLICATION

DIVISION XVIII

MATHEMATICS AND ASTRONOMY

MATHEMATICS

By Tomlinson Fort

Professor, Lehigh University

MEETINGS

The American Mathematical Society held meetings as follows: New York City, March 30-31; Chicago, April 6-7; Berkeley, Calif., June 20; Williamstown, Mass., Sept. 4-7; New York City, Oct. 27; Lincoln, Neb., Nov. 30-Dec. 1; Los Angeles, Dec. 1; Pittsburgh, Dec. 27-31.

The Mathematical Association of America held meetings at Williamstown, Sept. 3-4 and at Pittsburgh, Dec. 31. There were also numerous sectional meetings of the Association from time to time throughout the year.

The National Council of Teachers of Mathematics met at Cleveland Feb. 23-24. It also held a meeting in conjunction with the December meeting of the American Association for the Advancement of Science in Pittsburgh.

Southern Intercollegiate Mathematics Association.—The first annual meeting was held at Natchitoches, La., May 5. This Association was founded in 1933 with the avowed purpose "to stimulate an interest in mathematics in colleges and universities by holding annual competitions in algebra, analytic geometry and the calculus."

Society for the Promotion of Engineering Education.—The Mathematics Section held a conference at Cornell University on Advanced Mathematics Courses for Engineers, June 19-20.

LECTURES

Colloquium Lectures.—One of the most important activities of the American Mathematical Society is its Colloquia held in connection with summer meetings. At these, some phase of mathematics is treated in a series of lectures extending through several days. Colloquium lectures on "Fourier transforms in the complex domain" were delivered at Williamstown by Prof. Norbert Wiener of the Massachusetts Institute of Technology. It was originally planned to have some of the lectures delivered by Dr. A. C. Paley, but this was prevented by his untimely death.

Invited Addresses.—As usual the American Mathematical Society sponsored a number of special invited addresses at its meetings other than the Colloquium above referred to. Specially to be mentioned was a symposium held in Berkeley, Calif., at the time of the summer meeting of the

A.A.A.S. This was sponsored jointly by the Society, by Section K of the Association and by the Econometric Society. Addresses were given by E. B. Wilson, Harold Hotelling, Dunham Jackson and J. M. Thompson. A symposium on algebraic geometry was held in New York in March. Addresses were delivered by Oscar Zariski, A. A. Albert, Virgil Snyder and A. B. Coble. Other special invited addresses were delivered by R. E. Langer in Chicago, J. A. Shohat in Williamstown, Emmy Noether in New York, and G. A. Bliss and A. J. Kempner in Lincoln. The eleventh Josiah Willard Gibbs Lecture was delivered by Albert Einstein in Pittsburgh. A. B. Coble, C. N. Moore and Arnold Dresden, as retiring chairman of the American Mathematical Society, the Mathematical Association of America and Section A of the A.A.A.S., also delivered addresses in Pittsburgh.

RESEARCH

The American Mathematical Society is the organization whose special function is to foster research and to provide a forum for the presentation of mathematical papers. It is customary for the author to give a brief resumé of his work for which he is usually allowed ten minutes by the program committee. During 1934 approximately 400 strictly research papers were presented at meetings of the Society. An analysis of this vast amount of work is, of course, out of the question here. The reader should look at some program of a meeting in order to see the kind of thing that American mathematicians are doing.

BOOKS

Among noteworthy mathematical books published in America during 1934 were: *The Differential Invariants of Generalized Spaces,* by T. Y. Thomas; *Revision of Motte's Translation of Newton,* by Florian Cajori (posthumous); *Higher Mathematics for Engineers and Physicists,* by I. S. and E. S. Sokolnikoff; *A History of Mathematics in America prior to* 1900, by D. E. Smith and J. Ginsburg; *Theory of Linear Connections,* by D. J. Struik; *Differential Geometric Aspects of Dynamics,* by E. Kasner (reprinted); *Theory of Elasticity,* by S. Timoshenko.

MATHEMATICS JOURNALS

Duke University announced its intention of founding a new mathematics journal to publish research papers. It is intended to operate with the cooperation and advice of the editors of existing American mathematical publications and to make of the new venture a research publication in every way high class.

Louisiana State University. — In this connection it should be mentioned that the *Mathematics News Letter,* a small elementary mathematics magazine edited at Louisiana State University, changed its name to the *National Mathematics Magazine,* enlarged its board of editors and embarked on a much more ambitious mathematical program. The editors apparently hope to live up to the title which has been assumed.

E. H. MOORE

The close of 1932 was marked by the death of Eliakim Hastings Moore, for many years professor of mathematics at the University of Chicago and noted as the founder of general analysis and as one of America's greatest teachers. An account of the scientific work of Professor Moore was published by G. A. Bliss, also of Chicago, in the July issue of the *Bulletin of the American Mathematical Society.* It was there pointed out that E. H. Moore published mathematical papers in quite divergent fields, but that his papers on groups, numbers, algebra, integral equations and general analysis absorbed most of his attention. That he was a pioneer in striving for great generality in mathematics was already well known. Bliss, however, gives a detailed summary of his work which in itself is a chapter in the history of mathematics in America. He shows most clearly the key position which E. H. Moore held in the development of research in this country, and how some knowledge of E. H. Moore's work is essential to an understanding of the development of American mathematics.

ELECTIONS TO THE NATIONAL ACADEMY OF SCIENCES

Among the persons elected to the National Academy of Sciences were Prof. Norbert Wiener of the Massachusetts Institute of Technology and Prof. H. S. Vandiver of the University of Texas. Professor Wiener is distinguished for his work in harmonic analysis. He has been particularly active in developing very general theories and so-called Tauberian Theorems. He was chosen by the American Mathematical Society as its Colloquium speaker for 1934.

Professor Vandiver has been a lifelong worker in the Theory of Numbers. In particular, he has been a student of that perpetual challenge to mathematicians, *Fermat's Last Theorem,* and is considered the leading authority of the world in this particular connection. He was awarded the Cole Prize in the Theory of Numbers by the American Mathematical Society at its 1931 Christmas meeting in New Orleans at which time he presented a resumé of his work on *Fermat's Last Theorem.* He has been lecturing during the past year at the Institute for Advanced Studies.

FINANCIAL PROBLEM OF MATHEMATICAL PUBLICATION

The cost of publication has always been a great burden on organized mathematics. This has been particularly heavy on the American Mathematical Society, which sponsors so many publication projects. At the same time, there has been in recent years a growing sentiment among mathematicians that the universities should share in this expense. They usually demand research of members of their staffs and are beneficiaries from this research in many indirect ways. A study of the research locale in American mathematics was carefully made, and Prof. M. H. Ingraham of the University of Wisconsin, Associate Secretary of the Society, began a tour of the colleges and universities of the United States and Canada in order to elicit the aid of these institutions in the financial problems of mathematical publication to an amount roughly proportional to the amount of mathematical research done at the institution. He also undertook to interest individuals in the newly established contributing memberships. Secretary Ingraham's trip is to continue throughout the first half of 1935, and it is impossible as yet to report on his success.

MISCELLANEOUS

The Pontifical Academy of Sciences awarded its international prize for a memoir on a system of solutions of differential equations to G. D. Birkhoff.

Dinner to Holgate and Slaught.—At a meeting of the American Mathematical Society held in Chicago, the dinner program was in honor of Thomas F. Holgate, emeritus professor of mathematics at Northwestern University, and H. E. Slaught, emeritus professor of mathematics at the University of Chicago. Each had been secretary of the Chicago section for a period of ten years and each had served his university continuously for more than forty years.

University of Wisconsin Dinner.—A dinner was held at the University of Wisconsin to honor three of its teachers of mathematics who had reached the age of seventy years, namely E. B. Van Vleck, E. B. Skinner and C. S. Slichter. All had attained great eminence in their profession.

National Research Fellowships. — The following were awarded National Research Fellowships in mathematics for the year 1934-35: S. F. Barber, L. M. Blumenthal, R. H. Cameron, Ralph Hull, D. C. Lewis, Jr., W. T. Martin, Deane Montgomery, F. J. Murray, S. D. Myers, D. S. Nathan, M. I. S. Robertson and G. C. Webber. This list includes renewals.

NECROLOGY

Among mathematicians who died during 1934 were: E. D. Killebrew of Alabama Polytechnic Institute; J. T. Erwin, formerly of George Washington University; I. J. Schwatt, formerly of the University of Pennsylvania; J. E. Stocker of Lehigh University, and P. L. Saurel of the College of the City of New York.

OFFICERS OF THE AMERICAN MATHEMATICAL SOCIETY

The following were elected to offices in the American Mathematical Society at the Pittsburgh meeting:

Trustees (two years): Prof. W. B. Fite, Dr. Robert Henderson, Prof. W. R. Longley, Prof. G. W. Mullins, Dean R. G. D. Richardson;

President (two years): Prof. Solomon Lefschetz; Vice-President (two years): Prof. Harry Bateman; Associate Secretary (two years): Prof. J. R. Kline;

Member of the Editorial Committee of the *Bulletin* (three years): Prof. W. R. Longley;

Member of the Editorial Committee of the *Transactions* (three years): Prof. J. D. Tamarkin;

Member of the Editorial Committee of the Colloquium Publications (three years): Prof. R. L. Moore;

Members of the Council (three years): Prof. A. A. Albert, Prof. Harold Hotelling, Prof. R. E. Langer, Prof. D. V. Widder, Prof. R. L. Wilder.

ASTRONOMY

By Henry Norris Russell

Professor, Princeton University

OBSERVATORIES AND INSTRUMENTS

Large Telescopes.—The number of great telescopes now under construction is remarkable. All, of course, are reflectors. The first attempt to cast a 200-inch disk for the great telescope of the California Institute of Technology in April was but partially successful, as some of the fire-clay ''cores'' in the bottom of the ribbed mold became detached. Though this disk could have been utilized, a second and entirely successful casting was made, Dec. 2, at the Corning Glass Works. It will be many months before the process of cooling and annealing is completed. A 120-inch disk which, like the other, is of special Pyrex glass and stiffened by deep ribs on the back, has been cast and annealed with complete success, and is in progress of figuring at Pasadena into the ''flat,'' or perfectly plane mirror, which will be required for testing the larger paraboloid. A site for the new observatory has been selected on Palomar Mountain, California, on a high wooded plateau, remote at present, and, it is to be hoped, in the future, from city lights and all disturbances, and yet within a half-day's drive of Pasadena.

The 84½-inch disk for the new reflector of the University of Michigan was cast in May, and the 80-inch disk for the McDonald Observatory has already been annealed and found satisfactory. This observatory, operated jointly by the University of Texas and the Yerkes Obsevatory, will be situated in Western Texas in a very favorable climate.

The 74-inch reflector of the David Dunlap Observatory of the University of Toronto is further advanced, and its inauguration is set for May, 1935.

The two Harvard 60-inch reflectors —one at Bloemfontein, the other at Oak Ridge, Massachusetts,—are in active operation.

The Smithsonian Institution has inaugurated a new observing station close to Mount Sinai, with the cordial cooperation of the monks of the ancient monastery near by.

Long-standing legal difficulties regarding the Radcliffe endowment have been settled by a decision of the British Court of Chancery, and The Trustees are now free to carry out their plan of establishing an observatory in South Africa. A 72-inch reflector is planned, and enough should remain from the endowment to assure its operation. This will be the largest telescope in the Southern Hemisphere, and will have a great opportunity.

ALUMINIZED MIRRORS

All great telescope mirrors are of glass coated on the front with a thin metallic film. Silver, formerly used, is being displaced by aluminium. This metal, evaporated in a very high vacuum, deposits on a perfectly clean surface in a brilliant mirror. Upon admission of air, this is covered with a transparent and very thin, but amazingly strong, layer of oxide which protects it from tarnish, and even from ordinary mechanical damage. A coating of aluminium is much more permanent than one of silver, and has a finer polish, initially, than can be obtained by burnishing on silver. Its reflecting power is slightly less than *fresh* silver in the visible, but very much greater in the ultra-violet. In a word, it is practically ideal for telescopic purposes.

This process was first applied to a telescope mirror at Cornell in 1932 *(Ap. J.* 80, 1, 1934), and Strong (*A.S.P.* 46, 18, 1934) at Pasadena has succeeded in coating large mirors. The Crossley Reflector of the Lick Observatory, with the new coating, is 50 per cent faster in the visible, and many times as fast for ultraviolet work. The subsidiary mirrors of the Mount Wilson telescopes have already been aluminized, and a huge vacuum tank for treating the 100-inch mirror is under construction.

All the great instruments listed above will doubtless have aluminized mirrors when completed, and there is hope that the amateur may have his mirrors treated at small cost.

INFRA-RED PHOTOGRAPHY

Another notable technical advance has been the production of photographic plates sensitive to infra-red radiations far beyond the limit of the eye. The solar spectrum has been photographed with these beyond 13,000 A (twice the wave-length of red light) and laboratory spectra to 12,000. Some of these plates spoil in a few days at ordinary temperature, but keep if packed in "dry ice."

THE SUN

New Sun-spot Cycle.—A new sun-spot cycle has definitely begun. Though few, the spots are gradually increasing in number, and, though small, they are for the most part in high latitudes, 200,000 miles on each side of the Sun's equator. A few stragglers of the old cycle have appeared near the equator. The magnetic polarity (and doubtless the direction of rotation of the vortices below the surface) has reversed with the new cycle, as was expected.

Eclipses. — The total eclipse in February was of nearly three minutes' maximum duration, but its track lay almost entirely in the Pacific Ocean, so that it was but little observed. Japanese parties, with two Americans, occupied the small coral island of Losap, and had excellent weather. Details of their results are not yet published.

As the Moon's shadow passed eastward over the Pacific it crossed the "date line" where the reckoning is set back a day, so that it began on what was locally called Feb. 14, and ended three hours later on the 13th!

Investigation of Infra-red Solar Spectrum.—The important investigation of the infra-red solar spectrum, which has been in progress for some years at Mount Wilson, is nearing completion. The measures extend from 7,300 Angstroms (the end of Rowland's great table) to about 12,500, and include about 5,000 lines. A large proportion of these are produced in the earth's atmosphere, some by oxygen but the geat majority by water-vapor. Many of these are heavy, and almost conceal the true solar lines over considerable stretches, so that they are a nuisance to the astrophysicist, though their continual variation with weather conditions may some day be of aid to meteorologists. Identification of the solar lines is still in progress. The strongest are due to ionized calcium, and the largest number to iron. A considerable number of lines of the non-metals—carbon, nitrogen, oxygen, and sulphur—appear, and phosphorus has been detected for the first time (Moore, Babcock and Kiess, *Ap. J.* 80, 59, 1934). The strongest line of helium, at 10830, appears faintly in absorption (unlike all the rest, which appear only as bright lines in the chromosphere). The infra-red oxygen lines are strong in the latter, while the auroral line (λ5577) and the two strongest coronal lines (λλ5303, 6374) are permanently present, though faint (H. D. and H. W. Babcock, *A.S.P.* 46, 132, 1934).

THE MOON

Observations of the Moon's place in the heavens are as important as ever, for they afford the best check upon the uniformity of the rotation of the Earth, which serves astronomers for the measurement of time. Within recent years, the accuracy of such data has been more than doubled by the inclusion of great numbers of observations of occultations of stars made by professional astronomers and amateurs all over the world. The rather laborious calculations involved in the reductions are now made largely by amateurs—people who enjoy computation—under the general direction of Dr. Comrie of London, and Professor Brown of Yale. The results of 1,190 occultations observed in 1932, but finally worked up this year, show that the Moon was 14″.4 behind the position predicted by pure gravitational theory, indicating that the Earth, as a clock, was 26 seconds fast compared with an ideal standard. Since the year before, it ran fast by two-thirds of a second.

THE PLANETS

Venus.—The absorption bands in the infra-red, discovered by Adams and Dunham in 1932, and attributed to carbon dioxide, have been investigated by Slipher and Adel (*Phys. Rev.* 46, 240, 1934) who find that to produce them with the observed strength requires a layer of the gas at least two miles thick at standard pressure. This is ten thousand times greater than the amount present in the Earth's atmosphere, and there may be more yet below the cloudy surface. This gas exerts a powerful ''blanketing'' effect, admitting sunlight, but checking the escape of longer waves. Wildt concludes that the temperature of the planet's actual surface must be at least 100° Centigrade, which may explain the absence of any indications of life.

Mars.—Adams and Dunham (*Ap. J.* 79, 308, 1934) observing the B band of oxygen, found no perceptible difference in the positions or profiles of the lines in the spectra of the Sun and of Mars when approaching or receding rapidly, and concluded that the quantity of free oxygen above equal areas of the surface is certainly less than 1/1000 as much as on the Earth. Rock-weathering oxidizes ferrous iron compounds, producing red sand and mud from gray and bluish rocks. Half at least of the free oxygen on the Earth has been used up thus, and it may be that Mars' atmosphere once contained oxygen, but has lost it, leaving the red surface to show how. It is possible that vegetation might survive the depletion, which would be very slow.

The Asteroids.—During 1933, 394 new asteroids were discovered, 266 of them on photographs taken in that year, and the rest on plates from one to four years old. Most of these were lost again before observations enough were secured to permit the calculation of orbits, but 41 planets were added to the list of those with reliable orbits, raising the total to 1,264. The discoveries of 1934 cannot be summarized until next year. Baade, from the number of faint asteroids picked up accidentally on Mount Wilson plates, estimates that the total number brighter than the 19th magnitude, and potentially observable with great telescopes, is about 40,000.

The Major Planets.—The absorption bands in the spectra of the outer planets, which have been a mystery for more than 50 years, are now fully identified. Wildt recognized some of them as due to methane (CH_4) and others to ammonia, and Dunham, with higher dispersion, confirmed this. Now Slipher and Adel (*Phys. Rev.* 46, 902, 1934) have shown that methane accounts for practically all the bands, and interpreted them theoretically as overtones of the fundamental vibrations of the molecule.

In Jupiter and Saturn, where the bands are of moderate intensity, they indicate an amount of gas equivalent to a layer about a mile thick at standard temperature and pressure. In Uranus, and above all in Neptune, the bands are far stronger, and the thickness of the atmosphere must be great.

It is probable that these planets, like the Sun, contain a great excess of free hydrogen. The presence of hydrogen compounds in their atmospheres follows naturally. R. Wildt (Göttingen *Nachrichten* 1, 67, 1934) concludes from a careful physical study, that they possess an internal core of rock or metal, like the Earth, surrounded by a thick mantle of ice, surmounted by a deep layer of permanent gases, such as hydrogen and nitrogen, compressed to a dense, and possibly solid, state by its own weight, except at the top, where it grades off into an ordinary atmosphere.

Pluto continues to move very nearly in its calculated orbit, showing that the latter has been accurately determined. Baade (*A.S.P.* 46, 218, 1934) finds that the visual magnitude at mean opposition is 14.9, almost equal to that which Neptune's satellite, Triton, would show at the same distance.

COMETS

This has been an unusually poor year. Up to Dec. 5 not a single new comet was discovered. Two or three comets which were in sight at the year's beginning have been followed up, and three periodic comets observed anew at the predicted returns: Encke's in July, Reinmuth's of 1928 in November, and Comet 1929 I in December.

The remarkable Schwassmann-Wachmann Comet, which never comes nearer the Sun than Jupiter and unlike all other comets is observable in all parts of its orbit, though faint, increased in brightness about a hundred-fold between March 10 and 14. Such sudden changes are not infrequent among comets, but their causes are not understood.

METEORS

Results from the Harvard-Cornell expedition to Arizona are beginning to appear. The most interesting deals with the velocities of the meteors. These were determined by a new method, the meteor being observed by reflection in a rapidly oscillating mirror, which caused its apparent path to be wavy. This permits a far more accurate estimate of the apparent velocity than the old rough estimates of time of flight. Simultaneous observation by other observers determined the distance of the meteors, so that their real speed could be found. The results, discussed by Opik, confirm the old suspicion that many meteors are moving in hyperbolic orbits, and come from interstellar space. The percentage of these outsiders increases from 30 for bright meteors (magnitude 2.5) to 87 for telescopic meteors of magnitude 8.5. A majority of the ''sporadic'' meteors which do not belong to definite showers appear to be of extra-solar origin.

THE STARS

Positions.—The successful work of Schlesinger at Yale has shown that the positions of stars may be determined wholesale from photographs with wide-angle lenses more accurately, and much more cheaply, than with the meridian circle. The latter is essential for observing the standard stars used as points of reference for the photographs. A cooperative scheme, including British, German, Russian and American astronomers, is under way, which will yield accurate positions of more than 250,000 stars.

Proper Motions.—The motions of the stars in the heavens give us the best clue to their arrangement in space and the structure of the nearer parts of the universe. Motions of 40,000 stars have been determined from the Yale photographs; of 40,000 fainter southern stars by Luyten, from plates taken at the Harvard Stations in South America and South Africa, and great numbers more by other observers.

Parallaxes.—More than 3,000 stars have now had their distances measured by the direct (trigonometric) method, upwards of 5,000 by the spectroscopic method, and about 2,000 double stars by the dynamical method. Work is still actively progressing.

Double Stars.—A survey by Kuiper at the Lick has already led to the discovery of companions to seven faint red dwarf stars of large parallax; most of these pairs should have short periods.

Variable Stars.—Faint variables, like asteroids, continue to be discovered faster than they can be taken care of, though the cooperation of amateurs in various countries keep pretty good track of the brighter ones.

Zeta Aurigae.—This fourth-magnitude star, visible to the naked eye near Gapella, is a spectroscopic binary of period 972.6 days, and shows a composite spectrum. Recent work, by many observers, reveals that the brighter star is a red super-giant, of spectral class K5, about 180,000,000 miles in diameter, and 16 times as massive as the Sun. Revolving about it, in an orbit of eccentricity 0.4, and at a mean distance of 510,000,000 miles, is a hot white star of class B, not more than three or four million miles in diameter, but half as massive as the primary. To the eye the large star is four times as bright as the small one; in the ultra-violet, the smaller star is the brighter. From Aug. 24 to Oct. 1, 1934, the small star was totally eclipsed behind the big one. It came completely out in less than a day. The density of the small star is normal, perhaps ⅛ of the Sun's; that of the large star is only 1/500,000 of the Sun's, or 1/500 that of ordinary air.

Isolated stars similar to both components are already known, but the close association and presumably equal age of the two is noteworthy.

Just before and after the eclipse, the lines of ionized calcium and other metals were strengthened, indicating that the large star is surrounded by a rarified atmosphere, millions of miles in depth, which absorbed selectively the light of the bright white star behind it. The very low surface gravity may permit radiation pressure to hold up such an envelope.

STELLAR SPECTRA

Marked progress has been made in interpreting previously unknown lines. In the Wolf-Rayet stars, Beals, Edlen, and Miss Payne have identified almost all the bright lines as due to light atoms, carbon, nitrogen and oxygen, in highly ionized states. Some stars show carbon and oxygen strong and no nitrogen, others strong nitrogen and no carbon. The presence of absorption lines of *N* V (nitrogen four times ionized) indicates that the temperature may be as high as 80,000° in some stars. Beals has shown that the wide bright bands in these spectra are probably emitted by an extensive envelope of gases, expelled from the star by radiation pressure and moving rapidly outward in all directions.

Absorption lines of neon, neutral and ionized, have been recognized in stars of class B by several observers, and of ionized argon in υ Sagittarii by Morgan.

Merrill (*Ap. J.* 79, 183, 1934) has photographed the spectra of stars of many types as far as λ9000. The Paschen series of hydrogen is conspicuous in the hotter stars, as are lines of neutral oxygen and nitrogen, and ionized calcium. In the stars of class N the great cyanogen bands cut up the red end of the spectrum so much that the occasional clear gaps between the crowded lines look like bright emission lines, and have previously been measured as such. Naturally, these spurious "lines" did not agree with those of any known substance.

These stars evidently contain much more carbon than oxygen, unlike the great majority. The corresponding spectral difference in hotter stars, where the compounds which give the strong bands are decomposed, has long been sought, to be found by Berman in R Coronae Borealis, where the lines of neutral atomic carbon are abnormally stong.

SPECTROSCOPIC THEORY

The general characteristics of stellar spectra have now been satisfactorily interpreted on physical principles. The main features of the various types arise from differences in the surface temperatures of the stars; the features associated with absolute magnitude come from differences in surface gravity, and some others originate in differences of chemical composition (see above). The occurrence of compounds in the cooler stars has been discussed by Cambresier and Rosenfeld, and by Russell.

Starting with this first approximation, many investigators are working towards a precise quantitative theory, relating the observable strength of a line to the number of atoms engaged in its production. The problem is complicated. Struve has observed that lines of the same multiplet (for which the ratio of the numbers of atoms at work should theoretically be constant) show very different ratios of intensity in different stars. Turbulent motions of the atmospheric gases, widening and apparentaly strengthening some lines more than others may account for this discrepancy. Minnaert, in a recent summary (*Observatory* 57, 328, 1934) lists more than 60 papers dealing with this subject!

NEBULAR

The strongest unclassified lines in the spectra of gaseous nebulae have been identified by Boyce, Menzel and Payne, and by Bowen, as forbidden lines of neon, twice, thrice and four times ionized. The lines corresponding to the highest excitation appear nearest to the central star, as was to be expected. One or two lines in the deep red may arise from forbidden transitions in argon. All these lines are emitted only after a long latent period during which the atom holds its store of energy. For the green nebular lines of oxygen, Condon calculates that the interval averages 42 seconds.

There are, however, some nebular lines corresponding to ''permitted'' transitions, where the atoms unload their energy in less than a ten-millionth of a second after excitation. These belong to doubly ionized oxygen and nitrogen, but only a few lines out of each spectra are present. Bowen (*A.S.P.* 46, 146, 1934) shows that these are produced as follows. The strongest line of ionized helium, both in emission and absorption, is at 303.780 Angstrom units. A great quantity of radiation of this sort must be flying about inside the nebula, relayed from one helium atom to another, until at last it escapes into space. A doubly ionized oxygen atom can emit or absorb radiation at 303.799, so close to the other that a moderate relative motion of the atoms may enable the oxygen atom to absorb energy emitted by one of helium. Such an excited oxygen atom may unload its energy in succcessive steps, emitting first visible light and then ultra-violet. It is just the lines which can be produced thus which are found in the nebulate. One of the possible ultraviolet oxygen lines, at 374.436, is so close to a line of nitrogen at 374.441, that nitrogen atoms, in turn, may be loaded with energy and emit the recorded visible lines. The energy which originally loaded up the helium atoms came from the hot central star in the nebula; its vicissitudes in escaping might fairly be described as the Odyssey of a quantum.

THE GALAXY

Baade (*Ap. J.* 79, 475, 1934) reports a determination of the distance of a typical Milky Way star cloud, in Cygnus, by the photometric method, comparing the observed apparent brightness of stars of some definite sort belonging to the cloud, with their real brightness derived in other ways. Three groups of stars—eclipsing variables, long-period variables and hot stars of class B—agree substantially. Allowing for a small absorption of light in space between us and the cloud, its distance comes out 8,500 light-years.

Plasket and Pearce (*M.N.* 94, 679, 1934) from the motions of the hotter stars (07 to B5) find strong evidence of rotation about the center of the Galaxy. They conclude that the galactic center is 10,000 parsecs distant (32,000 light-years) in galactic longitude 324° (toward Sagittarius). The Sun, and most of its stellar neighbors, are pursuing roughly circular paths about this center, with a velocity of 275 km/sec. and complete a rotation in 224,000,000 years. The outer diameter of the Galaxy is estimated as 30,000 parsecs, and its total mass as 160,000 million times the Sun's. About half this mass is represented by the stars, the rest by the thinly scattered matter which clusters here and there into the dark clouds which may be seen in front of the Milky Way. The average density of this matter is estimated as 10^{-23} gm/cm^3, or about two-thirds of a grain per million cubic miles.

A cluster of stars, pursuing an orbit around the Galaxy, will tend to be gradually dissipated in two ways. First, some stars will move faster in their galactic orbits than others, so that the cluster strings out, and is ultimately lost in the general field of stars. Second, field stars, passing through the cluster, will by chance pass near cluster members, and, by their attraction, set them moving fast enough to escape. The first effect will be counteracted by the attraction of the cluster on its members, provided the stars are not too far apart, but the second is unavoidable. Bok (*Harvard Circular* 384) calculates that the cluster of the Hyades will be dissipated within 3,000 million years, while the Pleiades should hold together several times longer. The existence of these clusters indicates that the Galaxy has not existed in its present state for more than about two billion years.

EXTRA-GALACTIC NEBULAE

Hubble (*Ap. J.* 79, 8, 1934), from counts of 44,000 nebulae on 1283 plates, concludes that the number of nebulae brighter than magnitude 21.25 (the limit of identification with the 100-inch telescope) averages 1,780 per square degree, which equals the number of stars of the same brightness. This would give 75,000,000 in the whole heavens, if it were not for the obscuration along the Milky Way, which conceals all extra-galactic objects over an irregularly-bounded zone 20° to 30° wide. With instruments of greater space-penetrating power, the number of nebulae observed increases in proportion to the volume of space accessible, and there is no sign of any limit to the material universe. The total mass of an average nebula is estimated as a billion times that of the Sun, and the average density of visible matter in space, on the largest scale, as 10^{-30} gm/cm^3, or one milligram in a volume as great as the Earth's. There may be much more dark matter in addition.

About 125,000 new nebulae have been discovered at the Harvard stations in a program still under way. Stebbins and Whitford have found, by photoelectric measures with 100-inch telescope, that the faint outer parts of the great Andromeda Nebula extend to more than 1½ degrees from the center of the direction of its shorter diameter. Measures on photographs, made at the Harvard station at Oak Ridge with small but powerful cameras, indicate a shorter diameter of 4° and a longer of 4½°, so that the outer parts are much less elongated than the inner. The diameter of the system is 30,000 light-years, comparable with that of the Galaxy.

Harvard photographs show also that the Magellanic Clouds are much larger than had previously been supposed, 13,000 and 17,000 light-years. The brightest individual stars in the clouds are 100,000 times as luminous as the Sun. They are hot bodies with spectra of Class B.

Humason (*A.S.P.* 46, 290, 1934) finds for a nebula of magnitude 17.5—the brightest member of a cluster of very faint objects in Bootes—the enormous radial velocity of 39,200 km/sec. With the known relations between velocity and distance, this puts the nebular cluster 230,000,000 light-years away.

PERSONAL

The Gold Medal of the Royal Astronomical Society was awarded to Dr. Harlow Shapley, Director of the Harvard College Observatory, and the Bruce Medal of the Astronomical Society of the Pacific to Prof. Alfred Fowler, the English Spectroscopist.

NECROLOGY

Astronomy has lost two of its most distinguished figures during the year, C. V. L. Charlier of Lund, and Willem de Sitter of Leiden. Charlier was a master of statistical methods, whether applied in astronomy or in other fields, and his work on the distribution and motions of the stars was of fundamental importance. He was an inspiring teacher, and much admirable work by younger men has appeared in the Lund *Meddelanden.*

De Sitter's work lay mainly in celestial mechanics. Perhaps his most notable contribution was the discussion of the motion of Jupiter's four great satellites. These bodies move so quickly that the century and a half of observation is equivalent (in number of revolutions completed) to half a million years for the major planets. The mathematical developments had to be correspondingly exact, and only a great master could have solved the problem as he did. His contributions to the theory of relativity were second only to Einstein's, and included the first suggestion of the ''expanding universe'' (though not in its present theoretical form).

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASTRONOMICAL SOCIETY, University Observatory, Princeton, N. J.

MATHEMATICAL ASSN. OF AMERICA, Oberlin, O.

NATIONAL ACADEMY OF SCIENCES, 2101 Constitution Ave., Washington, D. C.

SCIENCE SERVICE, 2101 Constitution Ave., N. W., Washington, D. C.

DIVISION XIX

ENGINEERING AND CONSTRUCTION

STRUCTURAL ENGINEERING

By Whitney C. Huntington

Head of Civil Engineering Department, University of Illinois

DAMS

Federal-aid Projects. — The year 1934 has been outstanding in the field of structural engineering because of the great activity in the construction of dams financed, in most cases, by the Public Works Administration. According to the agreements commonly entered into, the projects are to repay the loans chiefly by the sale of the electric power generated. As summarized by the *Engineering News-Record* for Nov. 29, 1934, the principal projects financed with Federal funds, their initial and ultimate power installations and their estimated initial cost are as given in the following table:

Dam	Location	Power Installations in k. w.		Cost of Initial Development	Storage Acre-Foot
		Initial	Ultimate		
Bonneville	Wash., Ore.	86,000	430,000	$32,500,000	....
Grand Coulee	Washington	102,900	617,000	63,000,000	....
Boulder	Nev., Ariz.	370,000	1,355,000	133,000,000	30,000,000
Parker	Cal., Ariz.	....	80,000	13,000,000	717,000
Fort Peck	Montana	50,000	50,000	84,000,000	19,000,000
Alcova	Wyoming	....	....	15,900,000	Diversion
Seminoe	Wyoming	38,400	38,400	6,100,000	1,000,000
Norris	Tennessee	100,000	100,000	34,000,000	3,600,000
Wheeler	Alabama	32,000	256,000	28,000,000	....
Pickwick	Tennessee	....	204,000	22,000,000	....
Total		779,300	3,130,400	$431,500,000	....
Approx. horse power		1,000,000	4,000,000	....	....

Power Capacity.—The total capacity of all of the water power plants in the United States on Jan. 1, 1934, according to the Department of the Interior, was 15,913,451 horse power. If all of the available water power in the United States were fully developed according to present practice, the total capacity of the water wheels would be 80,000,000 horse power. These data are of interest for comparison with the capacity of plants now under construction with Federal funds as listed in the table.

Storage Capacity.—The total artificial storage capacity in the United States at the beginning of the year was about 30,000,000 acre-feet. The Boulder reservoir will, in a single unit, double this capacity and the Fort Peck reservoir being created in Montana with its capacity of about 20,000,000 acre-feet, together with the Norris reservoir in Tennessee and several smaller projects now under way will about treble the artificial storage capacity which was available at the beginning of 1934.

Boulder Dam. — Boulder Dam, which was started in 1931, is nearing completion many months ahead of schedule, and considerable progress has been made on the power house. It will be recalled that this dam is located on the Colorado River where it forms the boundary between Nevada and Arizona. It is a concrete gravity arch dam 729 ft. high above the foundation and 584 ft. above the water level. The crest length is 1,180 ft. It contains 3,400,000 cu. yds. of concrete and requires about 1,500,000 cu. yds. of excavation. The primary functions of the dam are to create a storage capacity which will protect the Imperial Valley in California from floods and provide water for the irrigation of this valley and of other areas in California and Arizona, and to generate electric power the sale of which is estimated to repay the Federal Government in 50 years for the $165,000,000 expended on the dam, power plant and the All-American Canal which conducts water from the Colorado River to the Imperial Valley without crossing over into Mexico as is the case with the present canal. The total storage provided is 30,000,000 acre-feet.

Many marked advances in structural practice and theory have resulted from the construction of this dam. The development of low-heat cement which reduces the shrinkage and cracking of the concrete (see THE AMERICAN YEAR BOOK, 1933, p. 678); the installation of a cooling system consisting of closely-spaced pipes in the body of the dam through which cold water is circulated to reduce the temperature due to the chemical action of the cement, and thereby prevent excessive volume change, cracking, and opening up of the joints after grouting; the refinements in stress calculation; the investigation of stress distributions in dams by means of small-scale models of rubber and other materials and by means of the photoelastic method; the conducting of model studies on the hydraulic properties of spillways and other hydraulic structures; the development of accurate and dependable methods for automatically controlling the proportioning of the concrete being placed in the dam; the devising of bold and effective methods for handling materials and loads of unprecedented size, and many other advances associated with this project will have a marked and very beneficial effect on the design and construction of future dams and other concrete structures.

The work of the U. S. Reclamation Bureau which made the preliminary investigation and prepared the designs, is conducting the research, and is supervising the construction, has been of a very high order and the work of the organization which is building the dam under contract is commendable.

Parker Dam.—Contracts were let in August and construction work started on the Parker Dam located on the Colorado River about 150 miles below Boulder Dam. This dam was designed by the U. S. Reclamation Bureau and, because of its interstate aspects, is being constructed under the direction of that organization for the Metropolitan Water District of Southern California, but the title will be vested in the Federal Government. Water will be pumped from the pool formed above the dam into the aqueduct 239 miles long, leading to Los Angeles and vicinity.

The dam is of concrete arch type 320 ft. high above the foundation and 800 ft. long at the crest. The water level will be raised only 80 ft. because of the 240-ft. depth of detritus covering the rock on which the dam is to be placed. Over 2,000,000 cu. yds. of material will have to be excavated to expose the foundation rock. A power house with 80,000-k.w. capacity is to be provided to supply electrical energy, a part of which will be used to pump the water into the aqueduct. The reservoir will be 50 miles long and will have a capacity of 717,000 acre-feet.

Bonneville Dam. — Construction work on this dam was well under way at the beginning of the year and has progressed rapidly. It is located on the Columbia River at the head of tide water and 140 miles from its mouth or about 40 miles above Portland. The principal objective in the construction of the dam is power development but, since the Columbia River is considered navigable for a distance of 60 miles above the dam and ocean-going vessels now go as far as Portland, navigation is also an important factor. A lock which will pass vessels 500 ft. long with a draft of 26 ft. is being included in the dam.

At the site of the dam, Bradford Island divides the stream into two channels. The main dam is being constructed in the Washington channel and consists of a concrete spillway section supporting 22 lift gates each 50 ft. long with a total discharge capacity of 1,400,000 cu. ft. per second. The channel on the Oregon side is closed by the power-house structure and the ship lock which is adjacent to the Oregon shore. A section constructed across the island joins those in the two channels. The dam will raise the water level 72 ft. The cost including the lock, fishways, and two of the ten proposed power units, each of 43,000-k.w. capacity, is estimated as about $32,500,000. The work is being done under the direction of the Corps of Engineers of the U. S. Army and is being financed by the PWA.

Grand Coulee Dam.—Work started early this year on the construction of the Grand Coulee Dam in northwestern Washington on the Columbia River 600 miles from its mouth. The present plans call for a dam 145 ft. high above the stream bed and include only a small part of those for the ultimate development at this site, which contemplate a dam 475 ft. high. The objective of the present project is power development, but if the high dam is ever constructed irrigation will be of primary importance. In the plans for the ultimate development, water from the reservoir behind the high dam is lifted by pumping into the Grand Coulee an adjoining prehistoric channel, which would be dammed at both ends to provide for the irrigation of 1,200,000 acres ot land. The hydro-electric power for operating the pumps would be developed at the site.

The low dam is a straight gravity concrete dam 3,500 ft. long, 300 ft. high above the lowest foundation and with an 1,800-ft. spillway in the central portion. It required 15,000,000 cu. yds. of excavation and will contain about 3,500,000 cu. yds. of concrete. The initial power installation will have a capacity of 102,900 k.w. but provision is made for the installation of units with a total capacity of 617,000 k.w. The cost of the present project is estimated as $63,000,000 and that of the ultimate development as about $400,000,000. It is estimated that the sale of power would pay all of the cost of the power features of the ultimate development and half of those chargeable to irrigation.

The dam is being financed by the PWA and is being constructed under the direction of the U. S. Reclamation Bureau. Contracts call for its completion by July, 1938.

Casper-Alcova and Seminoe Dams.—These dams are located on the North Platte River in central Wyoming near Casper. The Seminoe dam is a few miles above the Pathfinder Dam, completed in 1909, and the Casper-Alcova Dam is a few miles below this dam. Water which will be stored in the Seminoe Reservoir will be released to create power at the dam and will be retained again in the Pathfinder Reservoir until required for irrigation. The Casper-Alcova Dam will divert a part of the water released from the Pathfinder Dam into a 106-mile canal which will supply many miles of lateral canals and thereby irrigate 66,000 acres of land. At the present time the Pathfinder Reservoir with its capacity of 1,000,000 acre-feet is used to irrigate lands in the North Platte project located almost entirely in Nebraska. The new project is not to divert any water from this project.

The Seminoe Dam is a concrete arch which will raise the water level 185 ft. and create a reservoir with a capacity of 1,000,000 acre-feet. The power plant has a capacity of 38,400 k.w. The estimated cost including the dam, power plant, and transmission lines is about $6,100,000. The Casper-Alcova Dam is to be an earth and rock fill dam with a height of 232 ft. and crest length of about 1,000 ft. It will raise the water level 170 ft. The cost of the entire project including the distribution system is estimated as about $15,900,000. Construction started on these projects late in the year but has been delayed by legal disputes between the States of Colorado and Wyoming over water rights.

Fort Peck Dam. — Construction started Oct. 24, 1933 on the Fort Peck dam located at Fort Peck, Mon. on the Missouri River. Its object is primarily to improve navigation on the river from its mouth to Sioux City, Ia. by storing water during periods of flood flow and releasing it to increase the low water flow. The dam is an hydraulic earth fill, with toes of rock and gravel, 250 ft. high, 9,000 ft. long, and has a base width of 2,800 ft. It is the world's largest earth fill dam. The reservoir has an area of 245,000 acres, a capacity of 19,000,000 acre-feet, a length of 140 miles and a shore line of about 1,600 miles. The amount of earth fill in the main dam is about 92,000,000 cu. yds. and in supplementary dykes about 6,500,000 cu. yds. The estimated cost of the project is about $84,000,000. A power plant of 50,000-k.w. capacity is to be installed to develop electrical energy from the water released for navigation purposes during the periods of low water and a relatively small amount of water released at other times.

The dam is being financed by the PWA and is under the supervision of the Corps of Engineers of the U. S. Army. According to present plans, the entire project will be completed by 1939.

Norris Dam.—The Norris Dam was authorized by the Act of Congress which created the Tennessee Valley Authority, and construction was started early in 1934. It is located near Knoxville in east Tennessee at Cove Creek on the Clinch River, a tributary to the Tennessee River, and serves the dual purpose of generating electric power and of partially regulating the flow of the Tennessee River. By storing water at periods of excessive stream flow and releasing it during periods of low flow the minimum flow at Wilson Dam can be almost doubled, with a corresponding increase in firm electric power, and a higher navigation stage can be maintained in the main river. The dam will be a concrete gravity type 253 ft. high, 1,800 ft. long at the crest, and will create a reservoir with a storage capacity of 3,600,000 acre-feet. Nearly 1,000,000 cubic yards of concrete will be required for the dam, power house, and auxiliary structures. The generating capacity is to be 100,000 k.w. The cost of the dam and power house will be about $34,000,000. The project is scheduled for completion in 1936.

General Joe Wheeler Dam.—Work was started in November, 1933, on the General Joe Wheeler Dam which is being constructed as a part of the Tennessee Valley development. The dam is located on the Tennessee River at the head of the 15-mile lake created by Wilson Dam and is being constructed for the purpose of extending the nine-ft. navigation stage 88 miles further upstream, of generating electric power and of impounding flood waters. A single navigation lock, on which construction had been started some months previously by the Corps of Engineers, is included in the dam. The dam is a concrete gravity section with a maximum height of 70 ft. and a length of 6,400 ft. It will raise the water level about 50 ft., will contain about 600,000 cu. yds. of concrete and will cost about $28,000,000. The initial electric generating capacity will be 32,000 k.w. and when all of the units are installed will be 256,000 k.w.

Pickwick Landing Dam.—On Nov. 21, 1934, the construction of the Pickwick Landing Dam was authorized by the Tennessee Valley Authority. The location for this dam is on the Tennessee River about 70 miles below the Wilson Dam. When this dam is completed, there will be a 9-ft. navigation stage at all times for the 170-mile stretch from this point to Guntersville, Ala., at the head of the pool created by the Wheeler Dam which is located about 15 miles above the Wilson Dam. There is now a 6-ft. navigation stage from the junction of the Tennessee River with the Ohio River to Pickwick Landing, except in periods of low water. Studies are being made by the Tennessee Valley Authority for a dam at Aurora Landing, 44 miles above the junction with the Ohio. The pool which would be created by the Aurora Landing Dam would extend 163 miles up the river to the Pickwick Landing Dam and thereby make navigation possible for 9-ft. barges from the junction to head of the pool created by Wheeler Dam. Both the Pickwick Landing Dam and the Aurora Landing Dam, if constructed, would have run-of-river power plants. The ultimate capacity of the Pickwick power plant is given as 204,000 k.w. The estimated cost of the dam and power installation is $22,000,000.

Muskingum Flood-control Dams.—The Muskingum Watershed Conservency District has been set up for flood control and water conservation reservoirs in the valley of the Muskingum River which flows southward through Zanesville, O., and into the Ohio River at Marietta. The plans call for 15 dams of rolled-earth fill construction but there is to be one large concrete gravity dam located on the Tuscarawas River above Dover. Bids were opened on November 13 to 17 for the Tappan, Wills Creek and Charles Mill Dams. The total cost of the development is estimated as $35,000,000. The work is being directed by the Corps of Engineers of the U. S. Army and is being financed by the Public Works Administration.

BRIDGES

Long-span Bridges. — In spite of the greatly reduced activity in the construction field, there have been many outstanding accomplishments in the field of bridge construction made possible, to a large extent, by the aid in financing given by the PWA.

The Golden Gate Bridge and San Francisco Bay Bridge which are now under construction focus attention on large bridges. Rarely are long-span bridges constructed outside of the United States. The clear span of 1,000 ft. is sometimes taken as the lower limit for bridges to be classed as long-span. On this basis there are only seven long-span bridges outside of the United States. This number includes two in Canada, one in Great Britain, one in Australia, one in Continental Europe, one in South America, and one in South Africa, now nearing completion. The last bridge mentioned in a 1,100-ft. arch bridge over the Sabi River in Rhodesia. The long-span bridges in the United States are too numerous to mention but a few of those which may be considered as outstanding, their spans, and dates of completion are: Brooklyn, 1,596 ft., 1883; Delaware River, 1,750 ft., 1926; Ambassador, 1,850 ft., 1929; George Washington, 3,500 ft., 1931; San Francisco Bay Bridge, 2 spans of 2,310 ft., under construction; Golden Gate Bridge, 4,200 ft., under construction. All of these are suspension spans. The clear span is commonly used in comparing bridge sizes but the load carried is also significant. A comparison of cable strengths takes into account both the span and the load. The cable strengths in tons of the bridges just listed, arranged in order of increasing magnitude, are: Brooklyn, 44,800; Ambassador, 53,500; Delaware River, 118,000; Golden Gate, 193,000; George Washington, 350,000.

Golden Gate Bridge.—The salient features of the Golden Gate Bridge with its 4,200-ft. suspension span and 750-ft. steel towers, are given in THE AMERICAN YEAR BOOK for 1933, page 674. The north tower has been completed and the south pier is now ready to receive the steel work of the tower. Considerable difficulty was encountered in constructing this pier. Because of severe conditions caused by storms and strong tidal currents, the original plan of using a pneumatic caisson to found the pier on rock through 65 ft. of water was abandoned after the caisson had been built and floated into the concrete fender ring which is to give permanent protection to the pier. In the revised plan the fender ring was converted into a cofferdam, the enclosed water was pumped out and the pier was successfully constructed in the dry. It is planned to complete this bridge in 1937.

The San Francisco-Oakland Bay Bridge.—The general features of the bridge crossing San Francisco Bay are given in THE AMERICAN YEAR BOOK for 1933, page 675. At the bridge site the bay is divided into two channels by Yerba-Buena Island. The west channel is crossed by two complete suspension bridges each 4,630 ft. long with a 2,310-ft. center span and a common intermediate anchor pier. The east channel is crossed by a cantilever span with a span of 1,400 ft. immediately east of the island and a series of simple truss spans. On the island there is a 500-ft. tunnel connecting the ends of the bridges crossing the two channels. The most outstanding feature of this bridge is probably the foundation construction. The piers in the west channel support the suspension spans and are carried to rock with a maximum depth of 238 ft. On four of the six piers in this channel it was necessary to use the open-caisson method because the depths were beyond the limit of the cofferdam and pneumatic caisson methods.

Four of the 22 piers in the east channel were placed by the open-caisson method. The remaining 18 piers are supported on piles driven in the bottom of cofferdams used in constructing the piers. None of the piers was carried to rock, so in the case of the four deeper piers it was necessary to use a method of construction which would keep the foundation pressures as low as possible. The type of caisson used in the west channel was too heavy. The open-caisson method with false bottoms in the dredging wells was adopted. The deepest pier in the east channel reached a depth of 240 ft. below the water surface or 63 ft. deeper than the pier of the Atchafalaya Bridge which had hitherto been the deepest bridge pier in the world. (see THE AMERICAN YEAR BOOK for 1933, page 677). All of the piers are completed, steel erection is progressing rapidly from the east shore, and three of the four towers of the suspension spans across the west channel were completed at the close of the year. It is expected that the bridge will be completed in 1937.

Triborough Bridge.—Work is progressing on the Triborough Bridge in New York City across Hell Gate. It is a suspension bridge with a span of 1,380 ft. A grant of $7,200,000 and a loan of $37,000,000 was made to the Triborough Bridge Authority for this project by the PWA. The design is being prepared by the engineering staff of the Port of New York Authority, the designers of the George Washington Bridge and many other outstanding bridges.

The Ile d'Orleans Bridge. — A highway suspension bridge with a span of 1,059 ft. is being built across a back channel of the St. Lawrence River connecting the Ile d'Orleans with the mainland at St. Gregorie de Montmorency, seven miles below Quebec. The bridge is being built by the Department of Public Works of Quebec at a cost of about $1,500,000, partly as an unemployment relief project.

Missouri River Bridge at Kansas City.—The steel cantilever bridge across the Missouri River at Kansas City was completed this year. It is a private toll bridge owned by the Regional Bridge Company and was financed by the Reconstruction Finance Corporation.

The New Orleans Bridge.—Rapid progress was made during the year on the bridge across the Mississippi River at New Orleans, (see THE AMERICAN YEAR BOOK for 1933, page 676) with the piers completed and steel erection well advanced at the end of the year.

Cape Cod Bridges. — Two three-span continuous truss bridges of identical design, with the 616-ft. center span in the form of an arch, are under construction over the Cape Cod Canal, one at Sagamore and one at Bourne. A 544-ft. span railroad vertical lift bridge is also under construction across the canal. This is the longest bridge of its type yet built.

Traneberg Sound Bridge. — The Traneberg Sound Bridge in Stockholm, Sweden, with a clear span of 585 ft. and a rise of 88.5 ft. is the second longest concrete arch span in the world, being exceeded only by the Plougestel Bridge near Brest, France, with a span of 612 ft. The arch span consists of two ribs each with a width of 29.5 ft., a depth of 9.8 ft. at the crown and 16.4 ft. at the abutment. The arches are hollow, the width being divided into three cells with all walls about 18 in. thick at the crown and increasing toward the abutments. The roadway is a deck 90 ft. wide which carries highway and electric railway traffic. The bridge was completed this year at a cost of $5,300,000.

BUILDINGS

''Skyscraper'' Development. — This year marks the 50th anniversary of the first ''skyscraper,'' or more accurately, of the first skeleton construction building. Without skeleton construction the skyscraper would not have been possible. The basic principles of skeleton construction were years in developing but the Home Insurance Building designed by William Jenney and built in Chicago in 1884 is generally recognized as the first building in which these principles were sufficiently carried out to justify its recognition as the first skeleton construction building. During this 50-year period about 5,000 buildings with ten or more stories have been built, including about 400 with 20 or more stories. The maximum number of stories has increased from 10 to 85 and the height from scarcely over 125 feet to the 1,250 ft. of the Empire State Building, in spite of many predictions along the way that the maximum height had been reached. Similar authoritative predictions are made today. Only the future can determine their accuracy. During the past year, there has been very little activity in building construction.

Chicago Stockyards Amphitheatre. —The International Amphitheatre at the Union Stockyards in Chicago is worthy of mention. It was constructed to replace the pavillion destroyed by the fire which destroyed 60 acres of the stockyards section May 19, 1934. This structure is not only notable because of the 197-ft. span of its roof but because of the form of construction. The supporting members are rigid frames with vertical legs and top members conforming to the slope of the roof, constructed of steel H sections. The depth of the sections is increased at ridge and at the eaves by cutting the web longitudinally near the lower flange, bending this flange to the desired curvature and depth and joining together by web plates riveted on each side of the web which was cut. This form of construction was also used on the recently completed field house at the University of Chicago and will probably be extensively used in the future because of its simplicity and attractive appearance.

Field Building.—The Field Building in Chicago constructed on the site on which the Home Insurance Building, ''the first skyscraper,'' was built 50 years ago, was opened for service during the year. The building is 43 stories and 535 ft. high, has a rentable floor space of 1,000,000 sq. ft. and cost $12,000,000.

TUNNELS

Midtown Hudson Tunnel.—Work started during the year on the south tube of the vehicular tunnel across the Hudson River at about 39th Street in New York City. The under-river portion of the tunnel is about 6,000 ft. long between the ventilating shafts on the New York and New Jersey sides. A part of the tunnel on each side of the river is in rock but most of the tunnel will be carried on by the shield method operating with compressed air. The tube is 31 ft. in diameter with cast iron and cast steel lining plates. The plans for this project include two tubes but at present only one tube is being constructed. It will have two lanes and will be used for traffic in both directions. This project is being directed by the Port of New York Authority and is being financed by a $37,500,000 loan made by PWA.

Broadway Tunnel in Oakland. —

Work is underway on a doublebore highway tunnel 3,200 ft. long through the Berkeley Hills at Oakland, Calif., to accommodate the traffic anticipated when the San Francisco-Oakland Bay Bridge is completed in 1937. The tunnels will be lined with concrete and will be artificially ventilated.

Twin Lakes Tunnel.—A tunnel is being driven under the Continental Divide in Colorado to divert irrigation water from the west to the east slopes. It consists of 3.8 miles of 9-ft. 2½-in. bore and 1.75 miles of 8-ft. 2½-in. bore. The contract price is $1,125,000.

MECHANICAL ENGINEERING

By Leon Cammen

Associate Editor, *Mechanical Engineering*

GENERAL

The past year has been a difficult one from the point of view of engineering progress. The uprush of business of 1933 generally slowed down in 1934 with the result that many companies have curtailed their funds for development work. On the other hand, however, other companies, feeling that the markets for their standard products or processes were not expanding, have sought for ways of entry into new fields which give not inconsiderable impetus to research and invention. In the preparation of this review extensive use was made of reports of progress of the Professional Divisions of the American Society of Mechanical Engineers.

POWER GENERATION

Diesel Engine.—In general, there have been comparatively few new installations, with one marked exception, furnished by the Diesel engine industry. Here the outstanding developments have been increase of rotative speed, and lighter weight but greater power per unit. The tendency towards lighter weight was materially increased by the introduction of welded parts taking place of castings and the very general use of super-chargers, with results similar to those produced by increased speed. The use of mechanical as against air injection greatly simplified the installation. As regards the latter, the German firm Fried, Krupp & Company have succeeded in working out under the Arshauloff patents apparatus for conveniently converting the older air injection type engines to the newer mechanical injection type.

Fuel Developments.—In the field of steam engineering no new large plants have been built, but there have been some important developments. Burning pulverized coal is becoming more and more scientific, and the processes of combustion, effect of size of particle, etc., are being understood more and more. In the past this fuel has been primarily applicable to water tube boilers but in the past year several important installations of pulverized coal firing on Lancashire boilers have been made. One of the most interesting of these is at the Grimethorpe Coal Mine. In this plant the powdered coal is submitted to a preliminary process of gasification by partial combustion in a relatively small chamber and the combustible gaseous product so formed is then admitted to the main furnace chamber of the boiler together with the requisite secondary air for the final, complete combustion.

Benson Boiler.—Reference in previous reviews in The American Year Book has been made to the Benson boiler primarily developed to operate at the critical conditions, *i. e.,* 3,200 pounds pressure and a little over 900 degrees F. temperature, where the volume of steam for a given weight is equal to the volume of water weighing the same amount. This boiler was taken over for Germany by the Siemens-Schuckert Works and on the whole gave satisfactory results. Trouble, however, developed from the deposition of scale in the tubes. In its present shape the elements for the radiation portion are made up either of coiled or straight vertical tubes with headers at the lower end and collectors at the upper end, all down tubes leading to the next element. Either chain grate or pulverized fuel firing can be used. More and more forced circulation has been introduced as being less sensitive to variation in composition of feed water than with a natural circulation. What is most important, however, is that from this boiler a new method of turbine operation has been developed. This consists in omitting the throttling of the steam between the boiler and the turbine and replacing it by a variation of steam pressure in the steam as coming from the boiler. Here the turbine is designed to take the most frequently occurring base load at the lowest economical pressure. When the peak load comes on the steam pressure is correspondingly raised so that the weight of the steam passing through the turbine is similarly increased. On the other hand, the volume of steam passing through the turbine remains practically constant, since at constant inlet temperature the specific volume is approximately inversely proportional to the pressure.

Automatic Control of Boilers. — Remarkable progress has been made in the last few years in the way of automatic control of boilers. The last word in this development up to date has been presented in the gas-fired boiler for the Ford exhibition building at the Century of Progress Exposition in Chicago. In this boiler, steam is maintained at 150 pounds pressure by a special system of control of the gas burner. The control is purely electrical and through a reciprocating damper motor coordinates the stack damper setting with the motor-operated gas valve in the gas supply line to maintain the correct steam pressure with an unvarying air-gas ratio. There is therefore no over-shooting or under-shooting of the required steam pressure and greater economy of fuel consumption. Moreover, an additional device cuts off the gas entirely in case of excess steam pressure above a 5-lb. margin. A gas governor maintains a constant gas pressure ahead of the control system and a barometric regulator at the stack provides the necessary constant draft. It is extremely doubtful whether a human attendant could equal the maintenance of operation and particularly the air-gas ratio of the combustion efficiency throughout the full range of boiler output as well as is done by this machine.

Steam-driven Automobiles. — Two American developments of long standing, which did not take very well in their own country have come dramatically to the fore in Germany. One of these is the Lamont boiler and the other the steam-driven system for automobiles developed by Dobble. This latter has been introduced by the Henschel Company on motor trucks, individual rail cars and even passenger vehicles. Apart from the simplicity of operation, as represented by the elimination of a gearshift, the Dobble machinery permits use of cheaper fuels than used with the conventional gasoline automobile engine.

Leyland Hydraulic Converter. — It may be mentioned in this connection that the gasoline engine has another competitor rapidly approaching the status of real competition, *vis,* the small high speed Diesel. In England this has been assisted by the application of the Leyland hydraulic converter, which does for the Diesel engine drive what electric transmission did in marine engineering for steam turbine drive and, that is, permits to vary the revolution of the wheels without a corresponding change in the engine speed. This is important as the best efficiency of a Diesel engine can be maintained only over a comparatively narrow range of speeds.

CENTRAL STATIONS

Higher Steam Pressures and Temperatures.—In general in the field of steam engineering there has been a continual revolution towards the common acceptance of higher steam pressures and higher steam temperatures. Steam pressures up to about 1,400 pounds may now be considered as normal instead of partly experimental.

The steam temperature has been stepped up more or less rapidly from the ratio of 700 degrees F. to something in the way of 850 degrees, and higher temperatures are to be expected.

The ability to utilize high steam temperatures is gradually but certainly bringing about the common use of installations in which high steam pressures are used without reheating, thus producing a reduction in complication and first cost. In fact it seems as though the arrangement now most favored for highly efficient steam station may be described simply as the use of the highest steam pressure that can be utilized safely without reheating and with the highest steam temperature that the designer believes proper for the given conditions of use. At present, commercial installations are generally limited to steam temperatures between 800° and 900° F, with steam pressures in the range from, say 600 up to 800 lbs. The use of the 1,400-lb. steam with an initial temperature of 900° F, on a 100,000-kw. unit as ordered for the River Rouge Plant of the Ford Motor Company and to be operated without reheat in spite of an expected vacuum of the order of 1 in. Hg. indicates how far the turbine manufacturer is willing to go in the elimination of reheat. However, the recent installation of at least one major reheating plant at 1,400 lbs. should be recorded.

It should be noted that one of the essentials for satisfactory operation at high initial temperatures is a very constant steam temperature. Much ingenuity has been displayed by designers and manufacturers in producing equipment that will achieve this result.

Diesel Boiler.—The restless spirit of modern engineers is trying to put familiar parts of equipment into unfamiliar shapes or endow them with new functions. One such attempt is expressed in the Diesel boiler, an apparatus developed in Sweden for locomotive propulsion though not yet in use commercially. Here the steam generator is replaced by the Diesel generator which consists of combustion cylinders and a direct coupled compressor working against a back pressure of the exhaust gases. All the work generated in the combustion cylinders is expended in compressing air which is used principally in the combustion cylinders to dilute the exhaust gases and cool them down. If the generator is a two-stroke cycle engine, the whole mass of compressed air may be passed through the combustion cylinders so that the Diesel generator becomes virtually a Diesel boiler and the gases are used to drive a turbine. In other words, instead of generating power directly the Diesel unit merely creates exhaust gases, certainly a very long step from the time when exhaust gases were considered merely as a source of unavoidable loss. The old idea that a boiler should stand still and the engine run was shattered years ago by the Atmos boiler in which the tubes were revolving. This was not quite successful at first but lately a type was developed known as the ''internally fired squirrel-cage'' which seems to operate in a satisfactory manner. It has a cage containing a large number of horizontal evaporator tubes with the fire inside the cage itself. The idea of a revolving cylindrical furnace is new but in the combination with the steam generator a furnace of this type permits elimination of the fire-brick combustion chamber and requires only a light outer casing. Since both the boiler and the furnace can be now made to revolve one would expect the same to happen to the hitherto stationary parts of the steam plant. In Germany a rotary economizer has been developed. The rotor has a speed of from 265 to 300 r.p.m. and represents a piece of apparatus requiring unusually careful design. It is said that one such economizer has already operated nearly 8,000 working hours without outage.

Hüttner Turbine.—Finally in the Hüttner turbine both the boiler and the turbine revolve, the steam going direct from the former to the latter. This makes for an extremely simple construction in which a good deal of the control apparatus of a conventional turbine set is eliminated, while the output of the turbine is governed entirely by the amount of heat supplied to the steam tubes by the furnace.

Wind Power Plants.—Truly nothing stands still in modern engineering. The engineer is not satisfied today with conventional methods of power generation or old fashioned ways of doing it. The Russian engineers have found that the old fashioned wind mill, though picturesque, is inefficient as it requires a fairly high wind to operate it and doesn't utilize the wind power properly. They have, therefore, undertaken an extensive series of experiments with the effort to apply the teachings of modern aerodynamics to wind-mill design. It is stated that they have already been successful in producing types far more efficient than the old style mills. Incidentally, nothing has been heard of late of the wind power plant that was supposed to be erected at Deep Water, N. J.

Power Generation from Ocean Water. — Georges Claude of the neon sign fame, has been continuing his work on power generation from ocean water. His idea is to use the cold water taken from a considerable depth as the condensing medium producing a high vacuum under which the warm water from the upper layers of tropical seas might boil by its own heat, thus generating power. The first attempt to do so on a large scale failed for various reasons but Claude has now equipped a tramp steamer, *Tunisie,* as an ice-making plant, proposing to generate the power to drive the various machinery by the temperature difference method referred to above.

Binary Fluids.—The use of binary vapor power generation where water vapor gas is one fluid and mercury is another, has been previously referred to in THE AMERICAN YEAR BOOK in connection with the plan installed by the Hartford, (Conn.) Light and Power Company. This development has been comparatively slow but apparently highly successful, particularly as it would appear that the supplies of mercury in the form of ores are much more abundant than was at first believed. Other attempts to use binary fluids were made; for example, with diphenyl as the second fluid, water vapor being always the first. Lately aluminum bromide has been proposed and seems to work well on a laboratory scale.

Hydrogenation. — Because of the fact that large amounts of hydrogen are produced as by-products in the manufacture of oxygen for such purposes as autogenous welding, and because of improvements brought about in the processes of direct manufacture of hydrogen by the huge demand for hydrogen in hydrogenation processes, a good deal of attention has been attracted to the possibilities of burning this gas in explosion-type engines. One such engine has been developed by Erron. Practically any internal combustion engine can be reconstructed to burn hydrogen. Because of the high compression ratio that can be used with the hydrogen engine, it operates with very high efficiency, in addition to which the output per unit of volume of engine cylinder is increased because less heat is lost to the cooling water with the hydrogen motor than with the gasoline motor. There is also the possibility of a hydrogen-oxygen motor, which is the ideal method for driving mine locomotives, submarines and similar machinery as only steam is formed in its exhaust while the poisonous CO and CO_2 are absent.

Power from Atomic Forces.—No discussion of power generation today would be complete without some reference to the possibility of obtaining new sources of power either from sunlight or from so-called atomic forces, probably by a re-combination of atoms with few electrons into atoms carrying many of them. In both directions only laboratory work is available but the recent advances in the knowledge of the structure of the atomic nucleus bear promise of advancement in this art.

HYDRAULICS

Progress in Research.—It is not so very long ago that many people believed hydraulic engineering had about reached its maximum of achievement. The almost stationary maximum efficiencies and the huge capacities of single units were taken to justify such a conclusion. Once more the restless and ever progressing spirit of man was overlooked. There has been marked progress in the development of new types of pumping equipment and in the improvement of hydraulic turbine design. In addition, advances have been made in the studies of water hammer, water measurement, flow of water in conduits, cavitation in hydraulic equipment, water jet pumps, and in other directions. There appears, in fact, to have been a renaissance in hydraulic laboratory and research activities with the result that many avenues for worth-while advance are indicated. It is notable, in this connection, that research has not only shown the commonly accepted explanation of cavitation phenomena to be incomplete but has also indicated means of minimizing the effects of cavitation on both the performance of power and pumping units and on their maintenance.

Water Pump Design and Fabrication.—There have been many important advances in water-pump design and fabrication. Motor and steam turbine driven centrifugal pumps have shown efficiencies of the order of 90 per cent. The axial flow, propeller-type pump has been further improved and is rapidly coming into favor for low head work, including the circulation of condensing water in large steam-power plants. Moreover the head against which such pumps may work effectively is being increased as their characteristics are becoming better understood. To one who happened to be associated in a small way with the introduction of the multi-stage, high head centrifugal pump in this country some thirty odd years ago, it is of particular interest to note the present successful use of this type for heads of 3,000 to 4,000 ft. At the beginning of this century we were struggling with heads measured in the early hundreds instead of thousands.

Turbine Design.—The large public works program of the Federal Government has given a new impetus to hydraulic turbine design and several new units of record-breaking size and capacity are called for. The turbines for the Boulder Dam Power Plant are rated at 115,000 h.p. under a nominal head of 530 ft. These units are to operate at 150 r.p.m. They represent very great improvements over previous practice in many respects including better provisions for maintenance. Another notable unit is a turbine ordered by the Tennessee Valley Authority. This is of the propeller type and the largest of its kind yet attempted in this country. The throat will have a diameter of 268 inches. The capacity will be 45,000 h.p. under a head of 48 ft. when operating at a speed of 85.7 r.p.m. The Kaplan type of hydraulic turbine is finding increasing favor, particularly in plants required to run under very wide variations of discharge. It is reported that turbines of this type and of larger size and greater capacity than heretofore constructed in this country are being considered for the Bonneville plant on the Columbia River.

AVIATION

Improvements. — Here progress, and a rapid one, is being made in two directions. In the first place the conventional aeroplane and its constituents are being constantly improved, the results of these improvements having been, for example, startlingly demonstrated in the England-Australian air race and perhaps still more impressively in the fact that one of the larger passenger-carrying air companies in the United States has shown a performance with a reliability in excess of 99%. Of the improvements in present aeroplanes, in addition to better aerodynamic design, may be mentioned the development of an infinitely variable pitch propeller permitting a more efficient utilization of the power plant and, on an average, a lower consumption of fuel.

Autogiro.—On the whole the conventional aeroplane apparently has reached the stage where only refinements in design are produced. This is usually an indication that the time has come for the appearance of unconventional machines. The first of these that naturally comes to mind is the de la Cierve Autogiro. In the most recent type developed in the course of the past year the rudimentary wings used in previous designs have been practically completely eliminated which means that the inventor went back to his original construction in an enormously improved form, however. The wingless autogiro can land within an extremely restricted space entirely unfit for use by the conventional aeroplane and can rise at a very sharp angle. In the matter of speed, however, the autogiro is still inferior to the aeroplane.

In the autogiro a conventional propeller is used in addition to which a wind-mill propeller is provided. This propeller is spun at the start by direct drive from the motor and thereafter operated by the slip stream from the motor propeller and the screw action due to the plane moving through the air. In several more modern designs the idea of separating the translational propeller from the elements producing sustentation in the air has been given up and both functions have been incorporated in some sort of a flapping or rotating wings substantially along the same lines as the bird's wings. Several designs of this type have been produced such as the Platt, Rohrbach, Strandgren, etc. The most recent one is the Chappedelaine Aerogiro. This machine in a way represents a link between the autogiro and the conventional aeroplane. It makes use of the autorotation of special blades while in the autogiro the autorotating surface is constituted by a separate propeller. In the aerogiro the wings themselves, if so desired by the pilot, can rotate about the main transversal axis.

Helicopter.—Every one familiar with the history of aeronautics knows of the enormous amount of money and ingenuity expended in an effort to produce a helicopter; that is, a machine capable of sustaining itself in the air by means of its propellers only, without relying on propulsion through the air to create sustentation as does the conventional aeroplane. It would seem that we are approaching the solution of this most difficult problem. This is in part indicated by the Florine helicopter being developed by means provided by the French National Fund for Scientific Research. This helicopter employs two propellers rotating in the same direction and placed at a sufficient distance apart at the extremities of a rigid structure. This permits utilization of the lift of each propeller at full efficiency and control by the inclination of the axis of the equilibrium of the reaction couples which in turn insures the stability and maneuverability of the apparatus. On Oct. 25, 1933 this helicopter established a world record of duration of helicopter flight by remaining in the air for 9 minutes and 58 seconds at a height of approximately 5 meters.

Plane Performance and Progress.—No discussion of aviation would be complete without mentioning the splendid performance of British and American machines in the London-Melbourne flight. The cardinal importance of military aviation has also been fully recognized in the statement made by Stanley Baldwin in the British Parliament, to the effect that because of developments in aviation the British frontier is now located on the Rhine. Recent secret maneuvers of the British Fleet jointly with the air force seem to have indicated that, with present aeroplanes, an effective attack on major vessels from the air with disastrous results to surface craft has become entirely possible. Only a brief but highly significant reference to these maneuvers was published in England and none abroad. As a result of these and other factors huge programs of military aircraft development have been initiated in various countries, one of the largest programs being that of the Union of Socialist Soviet Republics. Those in the United States are largely based on the conclusions produced by a committee under the chairmanship of Newton D. Baker, Secretary of War during the World War.

LUBRICATION

In this field a very large amount of research work is being done, first, because it is generally felt that no satisfactory solution of problems of lubrication has been as yet achieved and, second, because the tendency towards using higher speeds and greater loads per unit of bearing are causing a lot of trouble when lubricants which have been satisfactory under less strenuous conditions are being used. Thus the present tendency to run automobiles at 50 and 60 miles an hour regularly, has forced a tendency to abandon babbitt bearings for the connecting rods and to replace them by materials such as copper, lead, and copper cadmium silver alloys. This brought about new troubles because oleic acid is formed as the oil oxidizes and attacks the new bearings. The older types have been largely immune to this cause of trouble.

The significant features of the progress in lubrication in the past year have been an effort to get at the true fundamentals of the process of lubrication. This led largely to the abandonment of the idea that viscosity (other factors being equal) is the dominating factor in lubrication and the recognition of adhesion as at least one of the dominating factors. Moreover the necessity to consider the effect of the material of the bearing such as metal on the lubrication performance of the oil, which in the past has been entirely neglected by lubrication engineers, is now coming into its own.

The subject of the mysterious property of oil, described as oiliness, has been investigated by Dr. R. O. King in England who came to the conclusion that oil improves in service, which Dr. King ascribes to the formation of certain products of oxidation. He points out that the oxidation, lubrication value of an oil, particularly a blended one, is dependent on its "history" as well as on the nature of the constituents. This is important as tests with machines measuring adhesion of oils to metal surfaces have shown the great superiority of Pennsylvania oils, over medium-adhesion mid-continent oils and low-adhesion Gulf oils.

RAILROADS

Speeding Traffic. — Developments in the railroad field have come in a rush this year partly because the railroads, financially aided by the RFC, felt that they could spend money on new developments (as a matter of fact some of these developments have been financed entirely by funds obtained from the Federal Government), and partly because the accelerating tempo of motor truck, bus and passenger car competition have forced the rail carriers to look for means of salvation. The most important of these developments deal with the matter of speeding up the traffic. This has been done in three ways. Some railroads have gone into streamlined trains propelled by Diesel engines. This seems to have been eminently successful mechanically but the cost of such trains, usually made of expensive stainless steel, is as yet extremely high.

Streamlining.—At least one railroad has resorted to the use of streamlined locomotives with more or less conventional cars attached. This has the advantage in that the propelling plant is steam, thoroughly familiar to railroad engineers. Therefore no special repair or maintenance shops have to be installed. With proper shaping, the steam locomotive should aerodynamically be more or less equivalent to the Diesel-driven locomotive. With this in mind one railroad has engaged in designing a jacket by means of which any high speed passenger steam locomotive could be converted into a streamlined unit. If this is successful the matter of speeding traffic up, in so far as motive power is concerned, ought to become simple and comparatively inexpensive.

High Speeds and Roadbed.—In the above statement reservation has been made to the effect that all of this applies to motive power only. Just what will happen to rails and road beds with trains rushing at 90 and 100 miles an hour is a different question. The force of impact on the rails and road bed varies as the square of the velocity; in other words, if at 60 miles an hour this impact be denoted by a factor 60 x 60 = 3,600, it becomes at 90 miles an hour 90 x 90 = 8,100 or more than twice the former value. There are two moderating factors, however, first, the great improvement in rail manufacture within the last ten years and, second, the development of means (magnetic and electric) for non-destructive tests of rails which have been brought to such a perfection that a test car can pass over a track and spray with paint the defective rails.

Delivery Methods. — In the past year little has been heard about the so-called train-ferry idea in which an entire train was to be loaded on a specially designed vessel and taken to destination or the port nearest destination by water. On the other hand, the container idea, where a load sufficient for handling by motor truck was to be carried on a freight car in a separate container, chiefly for store delivery, has made material progress.

Grooves in Place of Rails.—Russian engineers have been experimenting with a new type of railroad in which two semi-circular channels in a concrete road-bed take the place of rails, the locomotive and trains being mounted on large ball bearings running in these channels. No complete details of the mechanism have been published but it has been authoritatively stated that in tests very high speeds and uniformity of operation have been obtained.

Spirit of Progress.—The spirit of the day, so far as the railroads are concerned, has been well expressed by the Railroad Coordinator, George Eastman, who said ''The country ought to have the best and cheapest means of transport. If a new agency develops which is better than an older one that is unfortunate for the latter, but progress cannot wisely be halted for its protection. It would have been a crime if the railroads had been stopped for the benefit of the stage coach.''

ELECTRICAL ENGINEERING

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INTRODUCTION

General.—From an industrial point of view, electrical engineering is concerned primarily with the power industry, communication industry, electrical manufacturing industry, transportation industry, and with the application of electrical devices in manufacturing industries in general. The generation of electrical energy by utilities ran 5 to 10 per cent above that of the previous year and the output was not far from the level of 1930, when an all-time maximum was set. New construction centered chiefly in the hydroelectric developments sponsored by the Federal Government. In the communication industry there was improvement. The number of telephones in use increased during the year; the sale of radio sets exceeded that of the previous year; the radio industry was looking forward to the large market which it hopes will materialize as soon as television is introduced on a commercial basis. The manufacture of electrical equipment ran considerably above 1933, although still far below the 1929 to 1930 peak. It is, to a great extent, a capital industry and in common with other such industries it has lagged behind. One important railroad electrification was being pushed during the year and much work was being done in the field of new cars for urban and interurban lines.

Of the tremendous number of applications of electrical devices in industry it is regrettable that very few can be touched on in this article. New developments, new applications, new uses arise almost continuously so that from a technical point of view the obsolescence of industrial equipment of all sorts is speeding up even in time of depression. From a functional point of view, engineering may be divided into research and development, design, manufacture and sales categories. In general, research and development have been curtailed but by no means stopped during the depression. Design is, to some extent, the function of the quantity of product manufactured. On the whole it can be said that new products have been developed, new designs have been made, and a return of prosperity will make evident the great progress in electrical engineering which has occurred during the past four years.

Fiftieth Anniversary of the A.I.E.E.—In May, the American Institute of Electrical Engineers celebrated the 50th anniversary of the founding of the Institute. These years have witnessed the partial electrification of this country, the expansion of electric communication facilities to a point undreamed of in 1884 and changes in industry so radical that economists refer to the period as the "Second Industrial Revolution."

National Power Survey.—A national power survey is now being undertaken by the Federal Power Commission. It is to be hoped that many of the disturbing problems which have received no definite answer will be solved. The relative cost of steam and hydro generation, distribution costs, justification of current rates, etc., are some of these problems. According to a member of the Commission, the purposes of the survey are (1) to determine the present and future requirements of the United States, and (2) to determine from what sources these requirements can "be supplied most economically and efficiently in the public interest."

HYDROELECTRIC PROJECTS

Questions of Development.—In the survey of hydroelectric developments throughout the world, a sub-committee of the American Institute of Electrical Engineers made the following statement: "The nature and extent of future growth (of electric power generation) does not seem to be very clear, particularly in so far as hydroelectric developments are concerned". The outstanding questions concerning hydro developments are (1) is it more economical to generate electric energy in hydro plants than in steam plants? (2) Is the load available in the neighborhood of possible hydro plant sites sufficient to warrant the development? The increasing use of electricity in electrochemical and electrometallurgical industries, in which the cost of energy is a large part of the cost of the product, is taken by some to indicate that such industries will move to cheap energy districts. Others fear that transportation costs may seriously limit such settling of industries. Most observers agree that if the United States enters upon a period of expansion, the electrochemical and electrometallurgical industries will increase greatly in size.

Cost Research.—With the increasing efficiency of steam generation in electricity, it has been a question for some years whether hydro plants, on the whole, could be justified economically. Considerable research is now being carried on in an attempt to decrease the relatively large initial cost of a hydro plant. The extensive interconnections of transmission systems has resulted in extremely high load factors on many hydro plants thereby increasing the value of them.

Federal Projects. — Current hydro developments in the United States are confined almost exclusively to those sponsored by the Federal Government. The most discussed of these is that one undertaken by the Tennessee Valley Authority; others include the Boulder Dam project, and the Bonneville and Grand Coulee developments in the State of Washington. Another which might be started if the proper treaty arrangements were made is the proposed plant on the St. Lawrence River. It, however, would be constructed by an agency of the State of New York. In the case of the Federal projects, there is a serious question as to where the loads for the system are to be found, except in the case of the Boulder Dam. The output of the latter project was contracted for at the time of its inauguration.

TVA.—To build up a load for its system, the TVA has undertaken a vigorous campaign in those territories which it serves. With the example of the Ontario Hydroelectric Power Commission before it, it is endeavoring to have an average domestic use of between 1,000 and 2,000 kw-hrs. a year. The TVA is serving only a few localities and will not be in a position to do more until Norris Dam is completed.

One beneficial result of the Authority's load campaign has been the design of cheap household appliances of good quality. Electric ranges, hot-water heaters, etc., retailing at approximately half the price of similar appliances in the past have been designed and put on the market for the TVA. Consumers throughout the nation have benefited from this.

Grand Coulee.—Bids for the construction of Grand Coulee Dam Power Plant on the Columbia River were awarded during the year. This large project, which will take five years to complete, will ultimately have the capacity of 2,660,000 hp. of which only a portion is to be installed initially.

Boulder Dam.—82,500-kva hydro-electric generators will be installed shortly. These generators are the largest of their type ever built. The transmission lines connecting Boulder Dam with Los Angeles will be operated at 287,500 volts, the highest transmission voltage in the country. The transformers for use with these transmission lines will be rated 55,000 kva at 287,000 volts. This is the highest of any commercial transformers in this country.

National Policy.—In a message to Congress, President Roosevelt has declared there is a need of a rounded policy of national scope regarding natural resources. The report of a technical committee which has been studying the problem suggested consideration be given to the handling of those regional problems under organizations similar to the TVA, and late in the year the President, in a speech, indicated that he planned to encourage such development.

Effect on Coal.—Both the coal industry and the electric power utilities are opposed to TVA development and other Federal projects. In this connection the following excerpt from the *Electrical World* is of interest: "A 40 to 60 per cent increase in the price of coal as a result of NRA makes a marked change in the economics of power production. It brings hydro power back into the picture and offsets the gain of ten years intensive research in burning coal. It is equivalent to decreasing the coal market very materially so far as the utility industry is concerned."

GENERATION

Efficiency Gain.—Efficiency of generation has steadily increased during the depression. From an output of about 0.57 kw per pound of coal in 1929, it has risen to above 0.68 kw per pound of coal. Several stations are running at economies of around 12,300 b.t.u. per kw-hr and one of the mercury units operates at a rate of 10,500 b.t.u. per kw-hr. The Geological Survey reported for 1933 that 1.47 pounds of coal (or equivalent) was used on the average to generate a kw-hr, whereas in 1932 the rate was 1.50 pounds of coal per kw-hr. Although the saving appears small it is equivalent to 750,000 tons of coal per year. The rise in the price of some fuels made it appear that some old equipment would be replaced by modern plants. Many of the older stations in the country use two pounds of coal or more per kw-hr.

New Equipment Cost. — One instance of a large addition to a steam generating station at a cost of $43 per kw indicates the trend toward lower capital cost of new equipment. Current discussions mention figures as low as $78 per kw for new plants, considerably under previous costs.

Plant Capacity.—It is interesting to note that the installed capacity of generating stations is in most sections of the country not greatly in excess of the peak demand. This is true despite the fact that some have argued in the neighborhood of Government projects, the Tennessee Valley for example, capacity of present plants is so far in excess of current demand that it will take years to make full use of present installed equipment. Total capacity is about 5 per cent more than it was in 1930 (peak load), and total output is not far below the 1930 level.

Domestic Load. — The increase in domestic load has served to a large extent to counterbalance the loss due to the falling off of all types of industrial load. The result is that an appreciable upturn in business will be reflected in a large demand for generating equipment. Energy sales were near the 1929 level for domestic demand and total sales were within 3 or 4 per cent of those of 1929.

Standard Frequency.—The problem of maintaining constant frequency throughout large interconnected systems has been solved by one company by the use of a standard frequency supplied from a quartz crystal oscillator of an accuracy better than one part in a million.

Russia.—In Russia, which is of technical interest because of the great amount of electrical development now being carried on, the production for 1937 is planned to be 38,000,000,000 kw-hr, about half the current production in the United States. A 100-kw wind plant has been reported. This experimental outfit is operated by a windwheel of new design. Engineers have long discussed using the winds or the sun as a source of energy, but in general the utilization of these was not proved economical. It is perfectly possible, however, that the windwheel apparatus may prove economical in Russia.

DISTRIBUTION

Once more the question of distribution costs has occupied a prominent place in the technical literature. The relative values of radial and primary network systems, the use of automatic reclosing breakers on distribution lines to decrease outage time, the utilization of series capacitors and fundamental means of reducing distribution costs have all come in for their share of discussion. It can reasonably be said that less is known about distribution costs, and greater opportunity for decreasing the cost of electric service is to be found in distribution than in any other phase of electric energy supply.

In Great Britain the transmission of electric energy has been rationalized by the British grid scheme which, however, is not applicable to distribution. The following quotation from the *Electrical World* is interesting in this connection: ''The anomaly of the present situation in the United Kingdom is that, whereas the problem of bulk supply has practically been solved by the completion of the national grid network, the problem of distribution remains as far from solution as ever. There are 663 undertakings in the United Kingdom supplying current. Thus the extraordinary situation has arisen that, while the supply of energy is, or could easily be made, sufficient for the needs of every person in the country, great masses of the population cannot obtain it because of the chaotic state of the distribution industry.''

Late in the year the Power Authority of New York, under whose jurisdiction the St. Lawrence development (United States portion) will fall, issued a report on the costs of distribution in which it attacked the magnitudes of these costs, showed how unit costs would fall with increased average use, and illustrated further how St. Lawrence power would reduce the cost of electric energy in New York State. The report at once became a subject of controversy.

LOAD BUILDING

Domestic Increase.—''It is recognized today that domestic load is the backlog of the power business.'' This statement from an editorial in the *Electrical World* is amply supported by the increasing use of electric energy by the consumer. From 11.3 per cent in 1929, the domestic load has risen to about 17 per cent in 1932 and 1933. Actual use by domestic customers has increased during the depression by about 25 per cent. To a large extent this increase in domestic load has been the reason for the comparatively good position which most operating utilities have maintained during the depression. The low cost appliances developed for the TVA will, it is hoped, be a spur to increased domestic use. However, the Chamber of Commerce of the United States has pointed out that all the general electrification of all homes would require an investment of from $15,000,000,000 to $20,000,000,000 for appliances alone. The TVA has endeavored to get around this need for comparatively large capital investments by the consumer by lending money for appliances at low interest rates.

Range of Discussion.—The discussions of domestic load building have ranged all the way from the question of wiring, heretofore seldom mentioned in the technical and semi-technical publications, to studies of the lack of saturation in the market for electric refrigeration.

Rural Electrification has been a topic of active debate during the year. One of the plans for putting unemployed to work was to have the Government finance farm electrification on a large scale. In the United States, not more than 20 per cent of the farms have electric service. Numerous other attempts to induce greater consumption of electricity included offering of "free electricity" during certain summer months by some utilities, the pushing of air-conditioning, etc.

Industrial Use.—In the industrial field there was no relaxation of attempts to find new uses and new applications of electric energy. As one writer pointed out, the use of electricity in industry was represented to a great extent by electric motors whereas it is easily conceivable that use of electrical energy for heating, in electrochemical applications, etc., may be comparable to the former before many years have passed.

TRANSMISSION

Lightning investigations continued to play a prominent part in research devoted to transmission. Experimental tests led to a revision of the currently accepted Simpson theory. The experiments showed that the slow moving preliminary flash from cloud to ground is followed by the main flash which travels in the opposite direction along the same path. The experiments tended to show that the base of a cloud is not positively charged, and further indicated a potential gradient of about 25,000 volts per inch or more than 1,000,000,000 volts per mile. By using a simple measuring device consisting of a piece of metal which is magnetized by the passage of current through it, lightning currents in transmission line towers have been measured up to 60,000 amperes. Surge-current generators which produce currents of 100,000 amperes for 100 micro-seconds have been developed. These surge-current generators are the companions of the high voltage generators which in recent years have been built for lightning investigations.

Insulation Tests.—One new 3,000,000 volt generator has been built during the year for insulation tests. A sub-committee of the A.I.E.E. has been working in cooperation with several high voltage laboratories to eliminate differences in insulation flashover data obtained by different methods of tests. One experimenter has shown that the A.I.E.E. sphere gap calibration curves are in error.

Petersen Coils, which have been widely used in Europe, particularly in Germany, have been given a trial in this country. Disturbances due to line-to-ground faults on a 140-kv transmission system with ungrounded neutral have been largely eliminated by the use of Petersen coils.

Underground Counterpoise. — At least one of the Boulder Dam transmission lines—that of the Los Angeles Bureau of Power and Light—is to have an underground counterpoise. The use of counterpoise for reducing lightning disturbances on lines has been much discussed in the literature and, in general, counterpoises are being favorably received.

Shunt Resistor.—To eliminate excessive currents and voltages in times of system disturbances, a shunt resistor has been suggested. The resistance of the device decreases with increase of voltage across it.

Conductor vibration is still being studied and the problem remains an important one. The two most satisfactory solutions at present available are the use of dampers to prevent the building-up of vibrations and the use of reinforcements at points in the conductor where failures are likely to develop.

British Grid System. — In Great Britain, the grid transmission system is virtually complete in so far as the original plans are concerned. It includes about 4,000 miles of transmission lines, of which about 3,000 miles are 132 kv and the remaining, 66 kv or less. The use of electric energy increased by 16 per cent during the first nine months of 1934. It has been reported that the Japanese are considering establishing a grid scheme similar to that of Great Britain. It is also interesting to note that engineers of the Tennessee Valley Authority have been studying the British grid with the thought that it may serve as an example for the TVA territory.

INSULATION

Studies.—Both post and suspension insulators have been developed to increase mechanical strength and to decrease radio interference. In some cases the new design has led to the result that fatigue failure due to vibration now occurs in the metal part of the insulator before the porcelain part is affected. Other insulation studies reported during the year have been concerned with the dielectric properties of paper and the wetting of dielectrics.

Cable Research.—It is reported that a 220-kv oil-filled cable is being tested in Italy. In so far as cable manufacture is concerned, research is tending from the study of dielectrics to the investigation of sheaths, which appear to be the source of many troubles. However, toward the end of the year one manufacturer announced a new dielectric with properties superior in most respects to commercial dielectrics for cables, etc., now available.

MACHINERY AND INSTRUMENTS

Circuit Breakers.—One of the outstanding developments of recent years has been in the field of circuit breakers. From 1928, when hope for improvement in circuit breakers was almost dead, to the present, the change in circuit breaker design has been little short of remarkable. From having an interrupting time of 25 cycles (60-cycle base) new breakers have progressed to an 8-cycle time and during the year several large breakers were specified for 3-cycle operation. To cap this improvement, a demonstration of circuit interruption by a grid-controlled mercury arc rectifier during the year illustrated the breaking of a power circuit so fast that there was no time to fuse a very fine wire.

In some models of the new impulse circuit breaker, several very large types of which were rated for 3-cycle operation, the amount of oil used was decreased 95 per cent. The impulse breaker is a form of an oil-blast breaker in which oil is blown across the arc under pressure from pistons actuated by the operating mechanism instead of under pressure generated by the arc itself. The design and appearance of this new breaker is radically different from that of older ones.

Another new breaker which has been developed is the ''expulsion'' type in which the arc is expelled from the contact chamber by a gas blast. Models of this type of oil breaker have operated in from 1 to 2 cycles. Arc energy and gas generation have been reduced to values heretofore not reached, with oil deterioration and carbonization practically eliminated.

A new air circuit breaker with a 10,000-ampere, 750-volt d-c continuous rating was developed for use with large converters for a traction system. Of high speed air circuit breakers, the previous maximum rating has been 4,000 amperes for a single breaker.

Rectifiers.—The first high voltage grid-controlled mercury arc rectifier produced in this country was placed in service during the year. It was built particularly for radio transmission work and was rated 1,000 kw, 25,000 volts on the d-c side. Similar rectifiers have been used in Europe for several years. This new apparatus can interrupt a circuit in less than one cycle. It can allow a flashover in the transmitter to occur without interrupting the power supply for more than one-tenth of a second. Its output voltage can be controlled by a grid through the entire range from zero to a maximum value, thereby eliminating voltage regulators. Although the outfit demonstrated in the United States was designed particularly for operation in a radio transmitting station, many engineers saw in its circuit interrupting ability a hint of circuit breakers that are to come.

Electric Furnaces. — A large amount of space in the technical literature during the year was devoted to electric furnaces of two types. The electric furnace of the rocking type with indirect arc has been developed to the point where it may be used not only for the melting of nonferreous materials, but also in the production and castings in the various types of iron and steel. Many new cast irons may thus be produced with qualities greatly superior to the cast iron produced by any other means. With the efficiency (of the 3-phase electric arc furnace) being increased, and with the very low cost of installation and operation now comparable with that of an equivalent open hearth, a far more extensive application is open for the future. Induction furnace frequencies are, or will be, standardized within a short time. It has been pointed out that the demand for 5,000-cycle current for induction furnaces will require improvement of present generators or the development of new types.

Generator Developments. — There has been some discussion of building large generators rated at 33,000 volts. Some of these have already been built in Europe, but in this country 23,000 volts has been the maximum, and in the last five years there has been no increase in this figure. Studies of corona and insulation seem to assure that 33,000-volt generators are practical.

It has been reported that a high voltage generator outfit has been developed in Sweden. Technical details are not available but it is known that the apparatus consists of a direct current set, a side of which is inclosed in an air-tight chamber containing an inert gas at high pressure. The development is apparently associated with the proposed high voltage direct current transmission from the hydro-electric plants in Sweden to Germany.

In Belgium there has been placed in service a German-built single-shaft turbo-generator rated 80,000 kva. at 3,000 r.p.m.

Russia has completed the construction of a turbo-generator factory which, it is planned, will produce generators of 1,500,000 kw capacity per year. Two 200,000-kw generators are included in the plans.

Mechanical Progress. — The above are a few of the more outstanding developments in the fields of machinery and instruments. Numerous others too multifarious to be discussed here have been reported and in general it may be said that progress in this field has been hindered by the depression less than might be expected, particularly when it is considered that these developments are to a large extent in the field of capital goods.

TELEPHONY

Use of Ultra Short Waves. — An experimental installation of an ultra short wave radio telephone link has been made between two towns across Cape Cod Bay. If successful it is likely that a system such as this will be used wherever natural barriers make it difficult or uneconomical to construct an ordinary telephone line.

Coaxial Conductor. — A development which may be of considerable importance in the future is the coaxial conductor. This consists of an outer conducting tube which encloses a central conductor. Using the inner surface of the outer conductor and the outer surface of the inner conductor to form the circuit, it is estimated that the transmission band can extend up to 1 or 2,000,000 cycles per second, and possibly higher. This tremendous increase in the frequency band which can be transmitted means that in one coxial conductor there can be about 200 telephone channels per million cycle band. There is a possibility that the coaxial conductor will become important when it is necessary to transmit television programs between stations. The development of this new conductor rounds out many new improvements in the last thirty years which have enabled an increasing number of simultaneous communications to be transmitted over a given pair of conductors.

Transoceanic Telephone Service. — Since the introduction of transoceanic telephone service in 1927 about 93% of the telephones in the world have been connected with the Bell System. During 1934 direct telephone service with Japan and with Java was inaugurated. The former was new; in the latter case, connection had previously been by way of London, rather than directly from this country.

Inductive Coordination. — The problem of insuring that extraneous voltages will not be induced in telephone conductors is one which is always important. The electrification of the Pennsylvania Railroad lines from New York to Washington has created many new problems, many of which are being handled by new methods. Wherever the transmission lines parallel or come near a telephone line, it is necessary to eliminate or neutralize the voltages induced in the telephone line. Power companies, railroad, and the Bell System have worked harmoniously in organizing and attacking the problem; the actual elimination of the induced voltages is frequently an expensive project.

Repeaters.—A new type of telephone repeater or amplifier circuit has been developed which uses feedback to reduce the inherent gain. This apparently contradictory arrangement has been shown to increase the stability and to decrease the distortion introduced.

Crosstalk or the appearance in one circuit of a communication being transmitted in another circuit has been a problem of increasing importance in recent years. Several striking successes in overcoming this problem have been made recently. One is due to the development of new wire configurations and new transposition systems for open wire lines, another to arrangements which allow high frequency carrier telephone communications to be carried on over many pairs of conductors in existing cables.

Vacuum Tubes.—Vacuum tubes are of great importance in telephony, particularly in connection with long distance circuits, carrier systems and ringers, and in radio telephone installations. The first transatlantic telephone conversation in 1915 required more than 500 vacuum tubes. The present long wave transatlantic system uses 30 tubes and during the year a 100-kw tube was perfected, 6 of which will have a greater output than the 30 now used. The development of these larger tubes has depended upon the development of copper-glass seals, which in turn have allowed the development of satisfactory cooling arrangements for the tubes.

Miscellaneous.—A new loudspeaker about 500 times more powerful than speakers now available can project intelligible speech a distance of several miles in still air. The new speaker can penetrate noises which would drown out the most powerful equipment heretofore available. It is believed there is a considerable field of use for the speaker in handling or addressing large groups.

On two occasions during the year, fire destroyed telephone offices in medium-sized cities. At Anderson, Indiana, where the entire central office was wiped out, service was restored in two weeks. Emergency service for certain city departments, newspapers and hospitals, etc. was available at all times.

A new conference service through which many persons can talk to and hear one another was inaugurated during the year.

An important element in connecting a subscriber to the central office is the wire connection between house and cable. New developments have resulted in producing a wire for this purpose which has longer life, and is more light proof and more resistant to abrasion, than any wire heretofore available. It is known that most of the wear evidenced by these wires is due to sunlight or to rubbing against some object.

The increased use of telephone circuits for purposes such as supervisory control and telemetering has necessitated development of special devices to protect the telephone circuits, several of which were standardized for use on Bell System circuits this year.

ELECTRIC TRANSPORTATION

New Light-weight Cars. — There has been extensive discussion of new light-weight cars for urban and interurban traction system. According to one estimate there are 48,000 street cars or urban railways, of which 22,000 are more than 20 years old. It is with a view to the replacement of these old cars, as well as to the competition with other forms of transportation that electric manufacturers are attempting to develop better equipment. Next to the domestic load, the traction load is the most important one for light and power companies. Hence these utilities are interested in seeing that electric cars are replaced by other electric cars rather than by buses and are contributing in some cases to development work now being carried on.

Trolley Coaches, that is, trackless cars using overhead wires for energy supply, are becoming more popular.

Multi-section Cars. — Two light-weight multi-section cars have been delivered to the Brooklyn Manhattan Transit Corporation for trial. The weight per square foot of floor area, when loaded, is about three-fourths that of present equipment.

Electric Locomotives.—The Pennsylvania Railroad continued work on its Philadelphia to Washington electrification which it is expected will be in use in 1935. New locomotives now being built for the Pennsylvania are reported to be outstanding in many respects. Speeds of 90 m.p.h. are to be standard over some parts of the electrified tracks.

Electrification in Italy and Sweden.—Large electrification projects in Italy and Sweden have been reported, the one in Italy being a continuation of the plan which has been in effect for several years and which will, if realized, result in the electrification of 4,100 miles of track by 1943.

Progress in Railroad Electrification.—The much publicized "streamlined" train, which made its first run this year and which is operated by a diesel electric system, was taken by some to indicate that railroad electrification of the old type is a thing of the past. This may be the case, but the Pennsylvania Railroad has shown no hesitancy in carrying on its electrification of the "classical" type. It seems probable that where electrification has been justified economically in the past it will remain justified and that the new diesel electric units will replace steam locomotives rather than electric locomotives.

ELECTRON TUBES

It is regrettable that in an article of this type it is not possible to go into the great number of applications of electron tubes in industry. The use of the tubes in communication is a common-place, but the great extent to which they are being used in industrial applications is not always appreciated. Individually the applications are not important enough to mention here. Collectively they represent an advance which could hardly have been visualized 15 years ago.

Of new developments the most interesting have been the continued development of the "ignitron" principle, the production of a new 100-kw vacuum tube, the "acorn" tube mentioned in the section of radio and television and the improving of rectifiers in general, discussed in the section of electric machinery.

The electron tube motor, a motor in which a group of electron tubes is used in place of the commutator, has been developed. It has several advantages over the original commutator motor, one of which is that disturbances have relatively little effect on the operation of the motor. A possible use is as a speed and power regulator.

RADIO AND TELEVISION

General.—Because there is a separate article, Radio, in THE AMERICAN YEAR BOOK, the following discussion of this important field of electrical engineering will be brief. The most important events of the year have been the production of high fidelity receivers by manufacturers, the great strides that have been made in facsimile apparatus, the initiation of operation of Station WLW (500 kw), the production of "acorn" tubes, and the creation of the Federal Communications Commission.

Receivers.—The tentative definition of high fidelity by the R. M. A. Engineering Division requires that the high fidelity receiver have an audio frequency range of at least 50 to 7500 cycles, with total variations in acoustical output not exceeding 10 decibels and with at least 10 watts of electrical power output with total distortion not exceeding 5 per cent. Considerable discussion as to whether consumers want the superior receivers has appeared in the technical literature. To obtain the full use of the better quality receivers, it will be necessary to improve transmission from broadcasting stations, improve receiving antennas, etc. The sets put on the market in the fall of 1934 anticipated that these improvements will take place. Engineers of sound motion pictures have already improved the quality of their systems to a high fidelity point and reports indicate that the result has been appreciated by listeners.

Synchronized Broadcasting. — One of the important questions which the new Federal Communications Commission must face is that of synchronized broadcasting. To some engineers in the radio field synchronized stations are the answer to many problems. It may permit the use of wider channels (15—20 kc) for high fidelity broadcasts, more power in a given channel with better coverage than may be obtained by one high power station, etc. Equipment for such synchronizing is available and has been successfully operated on an experimental basis. The Federal Radio Commission, whose duties were assumed by new F. C. C. had refused to countenance synchronization of stations on an appreciable scale.

Facsimile transmission — the reproduction of still pictures—has been improved greatly. Optimistic persons are even predicting that a small size newspaper can be reproduced in the home on a facsimile printing outfit costing less than $50, used in conjunction with an ordinary radio receiver. Transmission of weather maps to ships at sea and of photographs from one point in the country to another are now being made. One of the larger American news-gathering organizations introduced picture transmission as part of its service during the year, but the service is optional and need not be taken by any paper not willing to bear the extra cost. Incidentally, it is interesting to note that news-gathering organizations and newspapers protested so vigorously against the broadcasting of news events that the larger broadcasting chains agreed to give very diluted résumés of the current news. The result of this has been that independent stations are supporting a news-gathering organization which supplies them with the news not now available from older agencies.

Station WLW, the first 500-kw station in this country, was placed in operation in May. Theories that it would blanket other transmissions were proved groundless. The outstanding advantages of high power broadcasting are increased coverage and a higher signal to noise ratio. The station is a high fidelity broadcaster. A concentric tube transmission line, 780 feet long, connects the antenna with the transmitter. Station KOA, Denver, Colorado, began using a radiator 470 feet high in place of the usual station antenna, to give low angle radiation for increased field strength and to reduce fading.

''Acorn'' Tubes, very small triodes for use at extreme high frequencies, were made commercially available during the year. For their purpose they represent a great advance over the larger tubes now commonly used. They can be used up to 600 megacycles, have very low interelectrode capacitances and lead inductances, and may be operated as amplifiers, detectors or oscillators.

Outlook for Television Programs.—''We have been very slow to concede that television in its pre-1934 forms has been anything but a crude scientific curiosity. We have felt that the dim, indistinct, flitting shadows we had previously seen on television screens, were far from the ultimate requirements for popular entertainment. But now new clarity of detail, new brilliance of illumination is being obtained, as new processes come to the front. Television systems of the scanning-disk, optical and cathode-ray types are all making important advances in picture value.'' With this introduction, the magazine *Electronics* introduced a review of the television sets now available in experimental models. Apparently the problem of television reception has been solved to a large extent. The problem of transmission presents a different aspect. It is estimated that an investment of $200,000,000 will be required to provide television programs throughout the country. It has seriously been suggested that the Federal Government supply the capital for setting up television transmission stations because of the large anticipated employment which would result from the anticipated demands for television receivers.

ILLUMINATION

Vision and Energy Aspects.—In the field of illumination there has been a strong tendency in recent years to consider the application of light from the point of view of vision and energy. Some persons have referred to a new science—''The Science of Seeing''—which combines engineering, psychological, and physiological aspects of light. Fundamentally in this new field lighting is concerned with the efficiency and well-being of humans. During the year numerous persons concerned with the physiology of sight joined with engineers, architects and others in a public campaign undertaken to disseminate information regarding the relationship of lighting to human well-being. In connection with the ''better light—better sight campaign'', the Illuminating Engineering Society has developed a standard study and reading lamp and, to quote the report of this committee, ''Many thousands are, for the first time, experiencing the real difference that good lighting makes in the common visual tasks.''

Gaseous Conductor Lamps.—Much development work has been done during the year on sodium vapor lamps. A small group of these newly developed light sources are already in use in city lighting. New types of the lamps operate from a single a-c circuit and the lamp fixture contains all the necessary starting and controlling equipment. Such lamps could be operated either in series or directly across the supply line, but in the latter case the power factor is rather low.

Up to the middle of the year, manufacturers were not pushing sodium vapor lamps except for experimental purposes. However, after that time they began to recommend the use of the lamps for street and highway lighting, some out-door lighting, and for various other purposes. Because of the color of the light the lamps have not been recommended for places where color discrimination is of importance.

New mercury vapor lamps are now being commercially promoted in this country. Installation of these lamps has already been made in Europe, particularly in Great Britain, where they have been utilized for street lighting. Used in conjunction with gas-filled tungsten lamps, a light closely approximating white light can be used. It is believed there is an important field of use for such a combination. The size of lamp now available is a 400-watt, 14,000-lumen lamp operating at 150 volts. Development work is being carried on to obtain other sizes, and to ''correct'' color by the addition of certain elements to the mercury.

Incandescent Lamps.—Double filament lamps similar to those which have been used for some years in automobiles have been made available in larger sizes. Used in homes or in business establishments, these lamps allow three levels of brightness, the filaments being operated either separately or together.

Reflectors.—A process by which a highly polished aluminum surface can be produced has been made commercially available. The aluminum surface has a high reflection factor and is extremely resistant to tarnish or corrosion. Since the efficiency of many lighting systems depends on the cleanliness of the reflectors, it is anticipated that the use of this new aluminum reflector will materially improve the average lighting in such cases.

Street and Highway Lighting.—It is estimated that poor street and highway lighting in this country costs, in loss or injury to life and property, about three times what good lighting would cost. The continued need for municipal economies was indicated by the downward trend in street lighting up to the middle of the year, thereafter the amount of street lighting used in the country started to increase. In Europe, the tendency to use smaller lamp-spacing with units mounted over the center of the road after the plan now followed in industrial establishments, has been noticed.

The lighting of highways outside of towns and cities has been tried only to a very limited extent in this country, considerably less than has been reported in Europe. Highway lighting in the United States represents a tremendous potential field of illumination. Many persons believe that in the not far distant future, American highways will be lighted in such a manner that automobiles will be driven with the head-lights turned off. Numerous reasons, but generally the fact that the social cost in accidents, etc. is far greater than the cost of installation, support this prophecy of future developments.

Plant Growth Stimulation. — The use of light to stimulate plant growth is being studied extensively. Numerous models of lighted greenhouse fixtures are now on the market. Light traps for catching insects have undergone extensive experiments. Some preliminary tests have shown that the light traps may be effective not only for protecting agricultural products, but also in fighting common pests such as mosquitos.

Airways. — The Bureau of Air Commerce is about to undertake the lighting of 1,300 additional miles of airways. It is interesting that the development of airway lighting beacons is being reflected in the increased use of electric light sources in lighthouses, even when these are far removed from a public source of electric energy.

Lighting in Europe.—Lighting in Europe is in a rather unique position. At the time of the last International Illuminating Congress (1931) many American engineers were disposed to criticize the fact that much attention was paid to gas lighting for streets and other systems of lighting long outmoded in this country. A review of European lighting by a writer in the November, 1934 issue of the *Transactions* of the I.E.S. pointed out the interesting fact that in the use of new light sources, Europe has been somewhat ahead of this country. In suburban London and in other cities of England, the high intensity mercury lamp is being used for street lighting and occasonally for flood lighting. Very few of the installations have the mercury lamp and a filament lamp in the same housing. Users of the streets seem to have no objectionable color impressions. In general a higher visibility has been obtained in the case of mercury-lamp installation than has been obtained otherwise and in some cases intensities on the street surface range from two to five times greater than others of comparable filament lamp installations in this country. Curiously enough, in England the mercury-lamp lighted thoroughfares are usually compared not with other ones lighted with filament lamps as in this country, but with gas lighted streets.

On the continent, sodium lamps are coming into use and many interurban highways are already partially equipped with this new light source. In some cases intensities as high as two foot-candles horizontally and 2.5 foot-candles vertically have been obtained, yet even at this high level, drivers of automobiles are reported to be scarcely conscious of color distortions. At such intensities a pedestrian can be seen more than one quarter of a mile away and safe driving speeds approximate those of the daytime.

It is also reported that much research work is being done to increase the efficiency of tungsten filament lamps. One line of attack has been to attempt to reduce the heat losses by introducing certain rare gases into the bulb. Some test results indicate an increase in lamp efficiency of 35 per cent when krypton or xenon was used. In connection with this development French engineers have at the same time developed a method for obtaining these gases on a commercial scale.

One important problem that faces European manufacturers is that of standardization. There is no standard frequency in Europe and many manufacturers must still produce different types of the same product, one type for each frequency available.

MISCELLANEOUS

Current Trends. — It is significant that the *Electrical World,* semi-official organ of the light and power utilities, has introduced a column entitled ''Municipal Items'' and another ''As to Rates''; in the former are listed actions taken by various towns on municipal projects; in the latter are given changes in rates, almost always downwards, of the utilities of the country. Frequently the listing of the items in these two groups has required three or more pages. Reflecting the increasing emphasis on economic problems confronting engineers, the Massachusetts Institute of Technology has introduced a five-year course in engineering economics. Many other universities have modified their engineering curricula to include more courses in economics and related subjects.

X-rays. — The development of *x*-ray equipment for use in medicine and of other electrical equipment for use in the medical field has continued during the year. In particular, attention has been devoted to eliminating the high voltage transformers usually considered a necessary adjunct to an *x*-ray outfit. The use of capacitors has been tried extensively both for the purpose of producing high voltages by electrostatic effects and for the purpose of storing charge to allow smaller generators and transformers to be used.

Machinery Maintenance. — Discussions of maintenance have grown in proportion to the length of the depression, a fact which could be logically expected. In a summary such as this article, it is not possible to do more than to mention this, but a great part of many engineers' time has been devoted to cutting down maintenance costs.

Welding. — Research in welding and the effect of welding on metals has continued unabated. On the whole, however, electric welding is now being accepted without comment. Within the last four or five years there has been a revolutionary change in the fabrication of metal parts in industry due to the introduction of electric welding. Much of the large pipe at Boulder Dam has been welded, all of the welding being *x*-rayed in order to locate flaws. In the West, one pipe line more than eighty inches in diameter and four and one-half miles long has been entirely welded.

Census of Engineers.—The U. S. Department of Labor announced plans of a census of engineers toward the end of the year. The results should be of great interest to engineers in general. Very little is known of their economic position in this country. Experience seems to indicate that to a great extent engineers and groups of engineers which have been mentioned in the press in connection with demands of the unemployed plans for small employment projects, etc. are to a large extent persons who assume the title of engineer arbitrarily. The result has been a great confusion concerning the economic status of engineers, using the term in its restricted sense. It is hoped that much of this confusion will be cleared up by the Department of Labor census.

Engineers Council for Professional Developments.—The E.C.P.D. is continuing its work started several years ago. Plans are being developed for rating engineering colleges, setting qualifications for engineers' licenses and otherwise laying down conditions which will tend in the long run to limit the engineering group and distinguish it from all other groups. In many respects, the E. C. P. D. is attempting to do for engineers what the American Medical Association did for physicians many years ago.

Electrochemistry.—Two improvements in storage batteries were reported during the year. An entirely new type of battery using a tin plate as the cathode and a lead plate as anode was announced in France. Advantages over other batteries were claimed, but complete information has not been reported. An improvement announced for a battery now on the market is the use of a separator material which acts "as a permanent electrical insulator while permitting a free and uninterrupted diffusion of electrolyte." The Drumm storage battery (see AMERICAN YEAR BOOK, 1932, p. 649) has been used to drive highway vehicles with costs running considerably less than those for automobiles using gasoline. The tests have been made in Europe, and results are not applicable in the United States.

Many discussions of electrometallurgical nature, during the year, centered about the use of electric furnaces for production of steels and other materials. In England, many 1250 cycle furnaces are in operation; some rated as high as five tons. According to the *Electrical World*, "the days of the old fusion and wasteful cupola are past, but this must be shown in terms of cost, quality and performance."

Another field in which Europe has set the example is in the application of electric furnaces in the ceramic industry. A committe of the Electrochemical Society and the American Ceramic Society has been appointed to investigate the reported success of electric firing of porcelain and other refractors in Europe.

National Electrical Safety Code.—In a decision rendered by the U. S. Circuit Court of Appeals, the National Electrical Safety Code, put out in 1926 by the Bureau of Standards, was excluded from the evidence on the basis that it represented merely the opinion of its authors.

Electricity in Agriculture.—There has been considerable discussion of electric hot-beds, electric heat for green-houses, electric insect traps and various other devices in connection with agriculture. Many miles of hotbed cable are now in use for speeding the growth of plants without the aid of fertilizer. Electric insect traps have been developed to a point where it is believed they may be competitive with spraying, now widely practiced by farmers. This may presage an important change in agricultural technique. Much criticism has been leveled at farm products recently because of the large residues left after sprays have been "washed off". According to tests on an experimental outfit in the field, effective protection of orchards was obtained at a cost no greater than the cost of spraying.

AUTOMOTIVE ENGINEERING

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VEHICLE TRENDS

A decided vogue toward the streamlining of the exterior of passenger cars, trucks and buses, the introduction of horizontal engines for truck use and the rear location of bus power plants with driving mechanism extending forward to the rear driving axle, mark the latest trends in automotive vehicles.

ENGINES

Greater output with the same basic engine dimensions has been obtained with cast iron heads whereas extremely high ratios depend on the use of a better thermal conductor such as aluminum which is in still greater use. The practical standardization of the antiknock value, between 68 and 70 octane number, of regular grade gasoline now available throughout the country, has greatly simplified the designer's task of selecting suitable compression ratios. Experiments with copper alloy heads with ratios up to 8–1 are very encouraging resulting in increased power, better fuel economy, less carbon deposit and more complete combustion.

Full length water jackets are in greater evidence in order to mitigate against cylinder distortion. One manufacturer utilizes a magnetic gauge to check cylinder wall thicknesses. Centrifugally cast dry and wet cylinder liners are being produced for the commercial field. Rubber rings at the cylinder base seal off the water jacket while copper asbestos-gaskets are used between the sleeve flange and its recess in the head of the block. Some of the steel-asbestos cylinder head-gaskets are being cadmium plated to resist deterioration.

The diesel engine field has been by no means neglected. One line of engines has been able to develop and successfully operate with a brake mean effective pressure equal to that of the modern gasoline engine. Another maker has built a combustion chamber with an auxiliary one in communication therewith through a controllable poppet valve, the total volume giving the necessary reduced compression for starting on gasoline with spark ignition and then switching over to the regular diesel cycle. A fuel pump has been introduced with swash-plate actuation of the parallel plungers nested about the driving shaft which also turns a central rotary control valve.

VALVES AND PISTONS

To defeat head warpage, a new high chrome alloy exhaust valve has been produced, utilizing an extruding process. Copper plated valve stems perform better under heat. Greater inlet valve ''breathing'' has been accomplished by allowing more space around the valves as well as providing a longer dwell period on the cam.

Tin plating of cast iron pistons is still popular. There is a trend toward the use of two-compression and two-oil control rings. An innovation is the provision of a wide top land between the top of the piston and the first ring.

CONNECTING RODS, CRANKSHAFT AND CASE

Greater accuracy in balancing the weight of connecting rod assemblies is indicated by one manufacturer in holding the tolerance about the same center of gravity to within plus or minus two grams. Cap bolts integral with the upper half of the rod are more popular.

With the increasing use of the leaded bronze connecting rod and main bearing, there now comes the cadmium-silver-copper alloy to compete on the basis of high impact values and unusual resistance at high temperatures.

Increased oil flow through the engines is continuing. One maker provides automatic cleaning of the oil filter by utilizing changes in the oil pressure through a piston-operated ratchet mechanism. A new oil refining process has been introduced, utilizing two solvents, propane for separating the paraffines and cresylic acid for extracting the required amounts of unsaturated compounds from the refined products. Low temperature flow and better heat and oxidation resistances result.

COOLING

There is an increase in the use of a cooling water distribution tube running the length of the block, with openings adjacent to the exhaust valve passageways. Circulating pumps are more efficient through the use of a greater number of blades on the impeller and needle bearings in place of plain bushings. The rear powerplant location in bus design might incite suspicion of cooling ability. This, however, is not the case. One unit conveys air through a duct to a radiator located above the engine which is sealed in its compartment and a shrouded fan at each side exhausts the air to the outside. Another maker, also with a sealed compartment, draws air in from the right side by the engine fan and blows it across to the radiator mounted in an exit opening on the left. Both the above engines have their crankshafts transversely across the bus at the very rear end, with the object of providing an unobstructed passenger carrying space in the vehicle.

The narrow high radiator, often with a deep shell and increased front slope toward the bottom, is in much evidence on passenger cars. New ornamentation has been added to the grilles. One line of cars incorporates a dual valve filler cap which provides a closed cooling system. One valve relieves pressures up to 3½ lbs. per square inch while the other limits the permissible vacuum to .2 inches mercury. A special filler is provided on one truck which, when off, seals the overflow so that a definite quantity of air is trapped in the top tank. When the cap is screwed on, the air is released while the water drops to the top tank, providing a definite expansion space therein.

FUEL SYSTEM

Down draft carburetion is still making inroads. A new type of air cleaner first strains the air through four meshes of wire after which it is deflected against a jute pad sprayed with silicate of soda. The resonance chamber surrounding the duct from the cleaner consists of a large number of parallel tubular cells formed up out of specially treated paper. One car builder places a governor between the carburetor and inlet manifold which is sealed at the factory and permits a speed of only 35 miles per hour during the breaking-in period. It is removed by the dealer after the car has gone 1,000 miles.

The supercharger is being used to overcome loss of power due to decreased volumetric efficiency at high speeds. It also causes a more homogeneous mixture with improved manifold distribution as a result. In one instance worm gearing is used to drive the rotor at a speed 5¾ times crankshaft speed. Another drive consists of a planetary step-up unit, in which the usual planet gears are replaced by smooth, thin-walled rollers. The sun and internal gears are also replaced by smooth surfaces. This friction drive is permissible because of decreased torque with the higher speed.

Considerable research in the bus and truck field with premium fuel containing tetra ethyl lead has shown greater overall economy of operation through the greater output from the high compression used.

ELECTRICAL SYSTEM

The increasing demands on the electrical system have resulted in the development of air-cooled generators from which greater output is possible. Cooling air enters at the commutator end and is exhausted by a fan with radial blades at the forward outside end, usually a part of the generator drive pulley. Bus requirements have resulted in 1,000 watt units. When shaft driven, a drive coupling in the form of an overload friction clutch is used to absorb the inertia of the heavy armature in rapid acceleration or deceleration.

Higher capacity batteries are being used. Reminiscent of foreign practice, one car builder locates the battery under the rear floor boards. A greater number of magnetos of the rotary magnet and stationary winding type are now available. Spark plugs of 10-millimeter size have been developed which are more immune to heat. In case of a short circuit, some cars are provided with an overload circuit breaker having a thermostatic flashing relay which acts as a warning.

CLUTCH AND TRANSMISSION

To reduce pedal pressure for clutch actuation, the makers of the larger cars have become converts to the use of the vacuum booster. One manufacturer provides a vacuum reserve tank serving both the clutch and brake boosters. A device has been introduced whereby the engine torque is used to supplement pedal pressure by the reaction of a circular cam normally rotating with the clutch housing and which is retarded when the clutch pedal is depressed. Clutch cover plates are shaped to shroud the springs with metal for about half their length so that bowing at high speeds from centrifugal force is prevented.

Transmission control is possible from an H-plate mounted on the right side of the steering column beneath the steering wheel. A small lever is shifted by the fingers which makes electrical contacts at the various positions which in turn govern electromagnetic valves controlling vacuum actuation of the shift cylinder alongside the transmission. One manufacturer makes preselection of the various speeds possible by using the clutch pedal movement, either by the foot or the automatic clutch mechanism, to complete the electrical circuit.

The rear-engine bus transmissions with transverse power plants are of interest in that no direct drive is incorporated. Since they are used in city work where the lower gears are in great use, the drive from a main shaft to a counter shaft without return is feasible. A bevel gear drive with slight reduction occurs either ahead or behind the transmission drive depending on whether the transmission shafts are perpendicular or parallel with the engine crankshaft. One layout provides a diagonal propeller shaft from the end of a conventional transmission equipped with a bevel gear transfer case to the driving axle whose pinion shaft is in approximate alignment with the propeller shaft.

AXLES, SUSPENSION AND BRAKES

The rear axle unit is being threatened with individual suspension at the rear. A considerable total as well as unsprung weight saving is possible by this method. A new individual suspension method for front and rear consists of a pair of parallel leaf springs below and a short triangular link above and at each side connected to the shock-absorber. The rear springs are spaced further apart than the front so as not to reduce ground clearance under the frame-supported differential unit. The Dubonnet suspension comprises a lever pivoted in a housing at the forward end and supporting the wheel at the rear end. Within the housing is a suspension coil spring reacting on a lever splined to the pivot shaft. Shock absorber mechanism is also contained in the housing and the entire mechanism pivots about a frame supported steering knuckle.

Tubular front axles have replaced the parallel link type of suspension previously used on one line of cars. Long, low-period front springs are used and a stabilizer bar is mounted on the forward side of the axle with the end levers facing forward, with vertical links connecting them to the frame.

Braking area is still on the increase as a sequel to higher car speeds. Avoidance of drum distortion and maintenance of concentricity are also assured in the new designs. To compensate for the self-wrapping action imparted by the drum to the forward brake shoe of a rigidly anchored system, greater pressure is exerted on the rear shoe by making the rear piston of the hydraulic cylinder of greater diameter than the front. A new fluid pressure diaphragm has been developed for brake and other uses consisting of a folded steel strip welded opposite the fold and bent upon itself as many times as necessary to produce the desired movement. To avoid sharp bends, a triangular strip between each layer maintains parallelism of the pack.

WHEELS AND TIRES

The stamped steel wheel predominates. Some makers have discontinued wire wheels while others use them with a steel cover. Sixteen inch tires continue to be popular. Adequate resistance to skidding with satisfactory noise characteristics has been finally worked out by new tread design. The complete enclosure of the spare tire in a compartment in the sloping rear body panel or horizontally below the trunk gives adequate protection of the tire as well as enhancing the complete vehicle.

FRAME

Individual wheel suspension, in concentrating the stresses arising from road impact, has called for more rigid frames. An entirely new type of front cross member has been developed to provide the necessary anchor-ages of the parallel links. In the Dubonnet system, the front cross member is extended at each side to carry the steering knuckle pin which is still in alignment with the wheel. Increased rigidity of the X member in one series of cars is obtained by extending the upper torsion plate at its center to the frame side members. An experimental design has been developed in which the channel sections at the front and rear are welded together to form the tubular center section, giving exceptional torsional rigidity. Body outriggers extend outwardly at each side.

CONTROL

Efforts toward easy steering continue. A new gear design consists of a small diameter worm track at the base of the steering tube which is engaged by two steel balls mounted in a ''nut'' which is slotted on its far side, engaging a pivoted tongue on the steering shaft lever. To increase its efficiency, one gear manufacturer mounts the roller tooth on angular contact ball bearings in place of the previous needle bearings and plain side washers. Ball and needle bearings are being used between the jacket and steering tube at the top of the column. To clear the front compartment, the hand brake lever in a number of instances has been moved under the cowl at the left side with the handle in an inverted position.

EQUIPMENT

Head lamps are longer, of bullet shape and set lower in the fender skirts. Difference of opinion exists in the matter of lamp finish between lacquering and chromium plating. Streamline bodies extending to the front of the car have recessed head lamps, flush with the body. Horns are becoming less conspicious, being placed under the hood or as in one case within the fender apron with a louvered opening facing forward. The indirect lighting of instrument boards is sometimes under the control of a rheostat to vary the intensity of illumination as desired. One maker provides an indicator to show the head lamp beam position.

The direct-acting shock absorber has been modified by providing a replaceable control valve making it possible to obtain any individual type of ride desired. The ride control adjustment is still retained on a few makes of cars. Tool compartments are provided with spring clips to hold the individual units in place and prevent rattle.

SHEET METAL AND BODY

Fenders have greater rotundity, suggestive of airfoils. Provision for wheel covers at the rear fenders is common. The horizontal chromium bead for hoods is very popular ranging from two to four strips which impart the impression of length. Small slotted louvres between the beads in individual groups or in continuous formation, vertical and horizontal, prevail.

Cradling the passengers between the axles, coincident with moving the power plant further forward, results in superior riding qualities. The all-steel unit welded body structure is increasingly popular except in cases where the production run is not sufficiently large to absorb the necessarily high die expense. Lower and longer lines combined with increased windshield and rear panel slope and the use of generous curves enable the designer to more clearly approach streamline design which is in greater evidence than ever before. A few manufacturers have made bold designs along these lines and are to be commended for the creditable full streamline creations they have evolved.

A center windshield glass supplemented with an angular pane at each side gives a wide breadth of vision. The full streamline bodies extending to the front of the chasis are wide at the windshield giving exceptional vision and permit the seating of three passengers comfortably on the front seat. Front seats that do not extend to the floor but which are usually supported on chromium plated tubing permit air circulation throughout the body. Air from the front cowl ventilator or heater can be distributed in this manner. Various window ventilation methods are used. The dual rear glass window is increasing.

Rubber beading around the tops of the doors serves as a wind and water seal. The old style drip moulding is disappearing. Continuing the side panels down to the running board is in increasing favor. A novelty of the year is the use of a continuous metal roof in place of the customary soft top. Drumming is avoided by using padding between the top bows and the roof. With this construction the radio antennae is of the tube type mounted under the running board. A higher output has been secured to compensate for the reduction in the antennae height.

Increased front seat width occurs with many of the conventional bodies. More leg room in the rear compartment is often obtained by recessing the back of the front seat. In one line of convertible bodies, the rear seats are adjustable and can be moved back when the top is raised, giving some eight inches of additional rear compartment room.

TRUCKS

A 12-cylinder horizontal opposed engine is used in a camel-back type truck in which the frame is offset downward in front to accommodate the engine which is entirely beneath the floorboards. The independent carburetor and air cleaner for each six-cylinder bank projects into the space beneath the seat. The entire power plant can be rolled out forward for removal.

Streamline cabs and bodies are making the new trucks objects of beauty. A particularly sleek vehicle is a tank wagon in which the tank extends back in continuation of the camel-back cab contour. With a space of less than an inch between the two, the effect of continuity is very pronounced.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

By H. H. Brown

Editor, *Marine Engineering & Shipping Age*

TYPES OF VESSELS UNDER CONSTRUCTION

Shipbuilding in the United States in 1934 was confined principally to naval work, as the demand for merchant tonnage was limited to small vessels of miscellaneous types. Including the naval vessels, which comprise 82 per cent of the tonnage under construction, the amount of work in hand at the end of the year was well over 250,000 tons. Fifteen shipyards are building 68 naval vessels, aggregating 230,500 tons displacements. These include two aircraft carriers, three heavy cruisers, seven light cruisers, ten submarines, ten 1850-ton destroyer leaders, thirty-four 1500-ton destroyers and two gunboats. To bring the Navy up to treaty strength there remain 78 naval vessels of various categories to be laid down in the next four years. During 1935 the Navy Department will ask authorization for building 24 additional vessels, including a 14,500-ton aircraft carrier, two light cruisers, three 1850-ton destroyer leaders, twelve 1500-ton destroyers and six submarines. This will add 62,950 tons to the work now in hand, leaving 36 destroyers and 18 submarines, or about 77,400 tons, to be ordered in the next four years.

NAVAL SHIPBUILDING PROGRAM

Restrictions of the Washington and London Naval Treaties have limited naval construction in this country to aircraft carriers, cruisers, destroyers, submarines and minor craft. Because of the recent action of Japan, the Washington Treaty will be terminated on Dec. 31, 1936, and at that time, unless new naval agreements are entered into by the principal maritime nations, it is likely that the building of battleships, battle cruisers and possibly some new types of first-line fighting ships, will be begun.

AIRCRAFT CARRIERS

The principal feature of the ideal aircraft carrier is a flight deck of such dimensions and arrangement as to permit the safe landing of airplanes, the servicing of planes preparatory to taking off and the taking off of planes. It is the only type of vessel upon which planes can land without the use of auxiliary devices, such as cranes, nets, etc.

In addition to the flight deck, there is a hangar of the maximum possible capacity for the stowage and assembling of planes. Elevators of high speed and large capacity are also required to connect the hangar deck with the flight deck. There are other important features, such as arresting gear, palisades, gasoline tanks and supply lines, magazines, etc., but these are auxiliary to the distinguishing features previously noted.

Opinions as to the proper speed for an aircraft carrier vary widely. The majority of the aircraft carriers now in commission in the various navies have speeds greater than 24 knots. The *Lexington* and *Saratoga* of the United States Navy, which were converted from battle cruisers, have speeds of 33 knots. Great speed in a carrier is of value in getting planes into the air. It permits the vessel to maintain her contact with the battle fleet more readily, and it may make possible an escape from some of the perils which beset a large and poorly protected ship. But high speed can be attained only with a very large propulsive power plant, which brings with it its own disadvantages and problems.

It is interesting to note that the majority of the aircraft carriers now in commission are vessels originally designed for some other purpose and later converted to aircraft carriers. For this reason the characteristics of these vessels vary widely, displacements ranging from 7,100 to 33,000 tons and speeds from 15 to 33 knots. Of the four existing ships originally designed as airplane carriers, the *Hermes* (Great Britain) of 10,850 tons and 40,000 horsepower, the *Hosho* (Japan) of 7,470 tons and 30,000 horsepower and the *Ryujo* (Japan) of 7,100 tons and 40,000 horsepower are of 25 knots speed while the *Ranger* (U. S.) of 14,500 tons and 53,500 horsepower has a speed of 29½ knots. While the vessels just mentioned are all of moderate speed and of relatively small displacement, the *Yorktown* and *Enterprise,* now building for the United States, are larger and faster. On the other hand, the Japanese carriers now projected are distinctly small vessels displacing only 10,000 tons. Such differences in trend are characteristic of the viewpoints governing aircraft carrier development.

In designing such vessels great length and width are required for the flight deck, involving a large weight carried high above the vessel's hull proper. In order to prevent excessive heel due to beam winds and to reduce list when the ship is damaged, comparatively large values of the metacentric height are essential. As the hull is necessarily of relatively great depth, the center of gravity of the ship is usually high, perhaps 50 to 60 per cent of the designed draft above the designed waterline. Hence, to secure the value of metacentric height desired it is usually necessary to resort to great beam. This, combined with the great length required by the flight deck, all on a limited displacement, is likely to result in a minimum draft. Such proportions produce reasonable bending moments in ships with underwater and side-belt protection, but, when such features are absent, bending moments may become very large.

BATTLE CRUISERS

Although the United States has no battle cruisers, the other large navies have such vessels, and, with the expiration of the Washington Treaty in 1936, consideration will soon have to be given to this type of vessel in the United States.

The battle cruiser was an outgrowth of the armored cruiser and was advocated 30 years ago by Prof. William L. Hovgaard, at that time professor of naval construction at the Massachusetts Institute of Technology. Its ideal form was pictured by Professor Hovgaard as virtually a battleship designed with a speed which at any given stage of the development should be distinctly higher than that of the battleship. Although a number of battle cruisers have been built since 1905, that ideal has never been adopted in its perfect form, although it has been closely approached.

After the World War the United States began construction of four of the largest, speediest and most heavily armored battle cruisers on the high seas only to give them up at the Washington Naval Conference in 1922. The importance of battle cruisers was shown throughout the World War, and their omission in a Navy designed to be second to none at the present time is particularly unfortunate. The United States Navy needs ships that can perform strategically, reconnoitering in force at great distances and which can carry out independent exploitations in distant parts of the world. For such work squadrons of light high-speed vessels are required supported by capital ships. Ordinary battleships are too slow for this purpose. The battle cruiser is the type that fulfils this need.

The characteristics of battle cruisers required in fleet action based on the results in the World War were fully outlined in a paper presented at the last November meeting of the Society of Naval Architects and Marine Engineers by Commander H. E. Rossell, professor of naval construction at the Massachusetts Institute of Technology, as follows:

In fleet actions battle cruisers must be expected to participate in protracted engagements with ships of similar type and also with battleships. The protective system of the battle cruiser should be comparable in efficiency, therefore, to that of the battleship. Moreover there is little room for compromise in respect to the armament of the battle cruiser. A primary battery equal in caliber to that of the battleship is required and the number of primary battery guns should be little if any less than for the battleship. In respect to secondary and anti-aircraft batteries and in respect to under-water protection, the requirements of the two types are the same.

The remaining major characteristics, speed and cruising radius, are not easy to evaluate. High speed in a battle cruiser is most desirable but it should not be obtained at the expense of offensive or defensive power.

In the judgment of Commander Rossell, the battle cruiser should have a speed about 20 per cent in excess of the standard for the battleships. The battle cruiser characteristics enumerated, however, can be obtained only on a displacement several thousand tons greater than that of contemporary battleships.

CRUISERS

The 10,000-ton treaty cruisers which form an important part of the present naval program are characterized by high speed, long cruising radius and sufficient armor and armament to enable them to perform all essential cruiser duties. They cannot engage, however, without great risk in many independent missions or in reconnaisance in force at great distances from their bases unless they are supported by powerful and fast capital ships. In fleet actions they are vulnerable targets for capital ships and have little to contribute in offensive power.

These vessels are about 600 feet long, 59 feet 6 inches beam and 42 feet depth. They have a designed speed of over 33½ knots and are propelled by geared turbines arranged on four shafts. Each shaft is driven by one high-pressure and one low-pressure ahead turbine and an astern turbine. Cruising turbines are also fitted on two shafts.

Because of the limited displacement of these vessels, every effort is made to save every possible pound of weight in the hull and machinery by the use of special materials and by substituting welding for riveting.

DESTROYERS

The predominant characteristic of destroyers both in offense and in defense is the highest possible speed, with due regard to armament. The necessity of saving every pound of weight possible in this type of vessel, therefore, is paramount.

By the use of high-pressure steam, high superheat and double-reduction geared-turbine drive for propulsion and alternating-current drive for auxiliaries, it is possible to make substantial reductions in machinery weights, which can be applied to increasing speed or armament or both. Savings in the weight of the hull structure are made by the use of special materials for both strength and non-strength members and by the extensive application of welding.

Other directions in which space and weight savings can be realized lie in in use of improved torpedo armament, horizontal separation of superimposed guns, twin-gun mountings and arrangement of accommodations.

HULL FORMS

Progress in the reduction of resistance of ships to propulsion is being steadily made in improving the form and proportions of the hull and its appendages. A development of this kind, which is useful especially in the design of slow-speed vessels, is the arcform hull in which the underwater sections of the hull are in the form of circular arcs, which give easier bilges and wider beam. The principal claims made for this new design include increased speed or reduced power for the same speed, requiring about 10 per cent less fuel in the ratio of reduced power. An increase in deadweight is made, due to the less weight of hull over the normal form, together with increased draft allowable, due to the increased reserve buoyancy. Further, in the ballast condition the water ballast is reduced to obtain the same ballast draft owing to the more rapid immersion of the lower water planes. With this form of hull the metacentric height is materially increased, resulting in an improved condition for carrying deck loads. Tank tests of this hull have shown that there is practically no loss in efficiency over a wide range of speeds. Cargo vessels of this type are using about half the amount of fuel consumed by a vessel of the same size and speed built ten years ago.

Another opportunity for improving the seaworthiness and economical performance of sea-going vessels is found in the Maierform hull which is being extensively adopted abroad both in the construction of new vessels and in the reconditioning of old ships. With this form of hull the streamline flow is improved by a properly designed forebody in the shape of a sloped tetrahedral part, the wave-making resistance of which is reduced as the length of the sloped tetrahedral forebody is increased. Savings of from 20 to 26 per cent in resistance have been made with this form of hull, and reports from ships' officers and owners recommend this type of hull not only for its economical performance but also for its excellent behavior and ease of handling at sea in heavy weather.

To reduce resistance further, streamline rudders with a fairwater fitted on the forward side of the sternpost, meeting and extending the fairwater from the hub of the propeller, have been found beneficial, and also the lapping of shell plating forward with the exposed edges slightly rounded. Contra rudders, which are a combination of the contra propeller and streamline rudder, have been fitted to numerous sea-going vessels with gains in fuel economy of from 15 to 20 per cent, or, if increased speed is desired, the regained power has provided an increase of from ½ to 1 knot in speed with no increase in fuel consumption.

Another novel idea in ship construction has been developed in the form of a furrowed stern. The main feature of this stern centers around the improvement of propulsion by a special, easy furrow in the afterbody in way of the propellers, somewhat along the line of a tunnel stern. It differs from a tunnel stern, however, in that the curvature both forward and aft of the position of the screws is gradually increased, to suit the natural flow by giving the furrow a section that corresponds to the acceleration of the water at the different points. The success of this type of stern is apparently due to a material decrease of the thrust deduction, resulting in an improvement in the propulsive coefficient of about 5 per cent.

A further improvement in propulsion efficiency has also been obtained by fitting a new type of propeller, which differs from the ordinary design in having the generating line (also the axial section) a curve instead of a straight line, raked aft at the hub and gradually changing to a forward rake at the tip. This propeller is said to give a 10 per cent greater thrust and a 2 to 5 per cent higher efficiency, as well as eliminating cavitation at the boss and diminishing bending vibrations of the blades.

FIRE-PROOF SHIP

The recent destruction of the *Morro Castle* by fire with the loss of 132 lives has focused attention again upon the methods of making ships, particularly passenger ships, fire proof or at least fire resisting to a much greater degree than heretofore. One of the major contributing factors in the *Morro Castle* fire was the extensive use of untreated wood in the construction and trim of passenger quarters, which in quantity and location provided the necessary fuel for the rapid spread of a conflagration. Today there is commercially available a sufficient number of fire-resisting materials so that, with the more extensive use of steel and other metals, fire-proof or fire-resisting construction of passenger quarters is not only practicable but economical on seagoing vessels. As the added cost of such fire-resisting construction has been found not to exceed one per cent of the cost of the vessel, it is probable that in the construction of all passenger ships in the future the use of untreated wood and other flammable materials will be eliminated.

The use of such materials has already been practically eliminated in the crew's quarters, galleys, pantries and other working spaces on the lower decks of modern vessels, so that except in the passenger accommodations the fire hazard has been greatly reduced. While laws will probably be enacted prohibiting wood interiors in all future passenger vessels, there remain in use throughout the world today hundreds of other ships which have wood passenger accommodations similar to those of the *Morro Castle* and which will comprise the bulk of our merchant marine for many years to come. Replacement of the accommodations in these vessels with fire-proof construction would be too costly to be practical, but the fire hazard in existing vessels could be considerably reduced by the installation of additional fire-resisting bulkheads, particularly around stairways; by the provision of two suitably protected exits to upper decks in each fire zone; by the installation of more extensive fire-detecting and extinguishing apparatus, particularly in the public rooms on the vessels, and by requiring more efficient fire-patrol by the crews on the ships.

AIR CONDITIONING

Air conditioning, while extensively used in buildings ashore and at a rapidly increasing rate in railroad trains, is a relatively new development on board ships. It has already been successfully applied in the dining rooms of ten large American passenger liners and to several yachts but so far to a very limited number of foreign vessels. The results have been so gratifying and so acceptable to the traveling public that air conditioning has become practically a necessity on any new passenger vessels, especially those designed to operate in the tropics. While the application of air conditioning to date has been confined mainly to dining rooms, the results are such that it will soon be extended to other public rooms and to staterooms.

HIGH-PRESSURE STEAM

In marine engineering the principal trend is toward the use of high-pressure steam, a trend that has been stimulated by the increasing use of oil engines for ship propulsion. At present, for example, there are under construction in Europe 20 passenger liners of which 13 are to be equipped with oil engines. A few years ago only steam would have been considered for this class of construction, but as the development of high-powered Diesel engines has progressed shipowners have availed themselves more and more of this more economical type of propelling machinery. Consequently, to meet the competition of oil engines the builders of steam machinery have been forced to seek ways and means of improving the economy of steam power plants. The direction in which this competition is being met is in the use of high-pressure steam and high superheat.

The trend of improved economy and efficiency in steam engine propulsion has also been aided in lower powered vessels by the combination of an exhaust steam turbine with steam reciprocating engines, which is a practice that is steadily establishing itself in the confidence of shipowners. Savings of as much as 40 per cent in fuel consumption have been made by this arrangement.

Considerable attention has also been given to improvements in boiler design, and several types of steam generators have been evolved which embody special features calculated to increase evaporation by restricting heat losses and by improving circulation and the rate of heat transference. Ten years ago saturated steam at 300 pounds per square inch pressure was considered suitable for naval vessels. The latest naval vessels ordered will have steam at 550 pounds per square inch pressure and 700 degrees F. temperature, with a temperature of 850 degrees F. in the offing.

Boiler conditions are a function of desirable turbine efficiencies and are guided by economic considerations such as investment and return, weight, cruising radius, etc. While 600 pounds per square inch and 750 degrees F. temperature represent a long step forward in marine engineering, it is predicted that the results will more than justify further advances. Designs have been developed by one shipyard for a vessel of 10,250 shaft horsepower in which the steam will have a pressure of 1,200 pounds per square inch and a temperature of 1,000 degrees F. For this installation a fuel rate of less than .48 pound per shaft horsepower for all purposes is guaranteed, which compares most favorably with the rate of .4 pound per shaft horsepower for a similar Diesel installation, considering the difference in cost of the oil required for boiler and Diesel fuel and the initial cost of the two types of machinery.

The use of highly superheated steam requires a means of de-superheating the steam for auxiliary purposes and condenser protection in maneuvering. Auxiliary steam requirements can now be met through the use of integral de-superheaters mounted in the main steam drum of the boilers. All the heat lost in de-superheating is thus recovered in the boiler. The de-superheater also provides a means of cooling the superheater while the vessel is in port and auxiliary steam is required for the operation of deck machinery for loading and discharging cargo.

In addition to the increase in overall efficiency gained by the use of high-pressure steam, there is the further important advantage that the high-pressure steam plant permits great savings in space and deadweight. Carried to its extreme possible limits, there is the possibility that in some future steamship the boilers will require no more weight and space than are now allotted to some of the engine-room auxiliaries.

COMMERCIAL MARINE ENGINEERING

By A. H. Jansson

Editor, *Marine Review*

MERCHANT SHIPBUILDING

American Tonnage.—While naval shipbuilding, due to the programs of 1933 and 1934—the first steps in achieving a treaty navy—represents a large volume of work, greater than at any time since the war, merchant shipbuilding in the United States has been at an extremely low point during 1934. In merchant shipbuilding, as of Oct. 1, 1934, in steel vessels of 100 gross tons and over, the United States had under construction only 22,225 gross tons as compared with 604,296 for Great Britain and Ireland; 149,750 for Japan; 120,868 for France; 120,816 for Germany; 74,938 for Denmark; 70,735 for Holland; 64,565 for Sweden; and 37,970 for Italy.

NEW TYPE OF AUTOMOBILE AND PASSENGER STEAMER

Delmarva.—In spite of this paucity in merchant shipbuilding, a number of interesting developments in naval architecture and marine engineering have taken place during the year. The automobile and passenger transport steamer, *Delmarva,* was completed early in January, by the Pusey & Jones Corp., Wilmington, Del., for the Virginia Ferry Corp., a subsidiary of the Pennsylvania Railroad. Reports indicate that her performance in service on Chesapeake bay has been very satisfactory.

Propelling Machinery. — For her type this vessel is unique both in hull design and in propelling machinery. The propelling machinery consists of two Skinner unaflow reciprocating steam engines. Each engine has four cylinders, 19 inches in diameter by 20 inches stroke, and develops 1400 shaft horsepower at 200 revolutions per minute when operating on a steam pressure of 275 pounds per square inch, with 200 degrees Fahr. superheat and 26 inches vacuum. The engines are wholly enclosed and are force feed lubricated. Steam is supplied by two Babcock & Wilcox, cross drum, sectional header, watertube marine boilers each having a total heating surface of 3,826 square feet and a total superheating surface of 371 square feet. The boilers operate at a working pressure of 285 pounds at the superheater outlet, though built for a maximum pressure of 322 pounds per square inch. The superheat is 200 degrees Fahr.

Hull Features.—Many original features are incorporated in the hull of the *Delmarva.* From keel to waterline the vessel might be said to be a conventional bay steamer. From waterline to deckline her hull flares out to meet the conventional ferry boat deck lines, having the same contour, bow and stern. The stern, however, is unusual for it is virtually a flattened plane, submerged only a few inches below the waterline. This adds to the buoyancy and prevents ''squatting'' when operating in shallow water. The propellers are set considerably farther outboard than customary which improves maneuver ability and propeller efficiency in restricted waters. An interesting feature, which has been adopted from the practice followed in a number of recent large liners, is the lapping of hull plates forward. The leading edges of the plates are rounded off, and the arrangement is said to have an appreciable effect in reducing resistance.

Space-saving Features.—From the operating man's point of view, the outstanding feature in the design of the *Delmarva* is the ingenious manner in which a vessel, 59 feet in width, provides six lanes for automobiles, as against four lanes for the conventional design at the same width. This is accomplished by placing boilers athwartship and splitting the uptakes so that they occupy only two feet in width. The uptakes meet in an insulated room on the promenade deck and are then carried into a common stack. Another feature in space saving is the elimination of stanchions above the main deck, a trunk and girder system being used instead. The overall height of the ship has been reduced by supporting the promenade deck by girders above deck instead of underneath.

Engines.—Some interesting figures on actual performance in service are now available. The *Delmarva* easily makes the 26-mile run in the scheduled time of 1 hour, 45 minutes. Furthermore this schedule is maintained with only one of the two boilers delivering steam. Her consumption is less than one pound of fuel oil per shaft horsepower per hour. For all purposes, during the first 25,000 miles of her operation, the fuel oil consumption averaged 4500 gallons per 24 hours. The engines during that period operated without trouble of any kind and with an exceptionally low lubricating oil consumption. In maneuvering, the engines have been found to be more responsive than the ordinary triple expansion type.

OCEAN FREIGHT VESSELS

Angelina and Manuela.—The outstanding, in fact, the only ocean-going freight vessels constructed during the year were the S. S. *Angelina* and S. S. *Manuela,* built by the Newport News Shipbuilding & Dry Dock Co., for the A. H. Bull Steamship Co., New York. These two vessels are the first general cargo ships to be built in the United States since 1921. Although classified as freight ships, they each have accommodations for 12 passengers in six staterooms.

Design. — The vessels are finely formed for speed and have a suggestion of a bulbous bow due to the raking of the stem. There is, however, no actual bulbing of the bow line. To further reduce resistance, the rudders are of the streamlined type with fair water fitted on the forward side of the stern post, meeting and extending the fairwater from the hub of the propeller. In these vessels also the shell plating is lapped forward and the exposed edges are slightly rounded. By skillful design the form of the vessel not only gives minimum resistance to propulsion, but also an unusually large capacity for holds in a hull of such fineness. The vessels were built to the highest class and under the survey of the American Bureau of Shipping.

Size, Speed, etc. — The principal characteristics of these vessels are: length overall, 410 feet, 9 inches; length between perpendiculars, 390 feet; beam molded, 55 feet; depth to upper deck, 30 feet, 6 inches; load draft extreme, 24 feet, 6¾ inches; deadweight on load draft, 7250 tons; gross tonnage, 4773; net tonnage, 2946; speed, normal in service, 13 knots; shaft horsepower in service, 3150, applied to a single propeller; and cargo capacity (bale) 396,000 cubic feet. The bunker fuel capacity is 1015 tons.

The propelling machinery of the *Angelina* and *Manuela* consists of a Newport News type cross compound double reduction geared turbine transmitting 3,150 shaft horsepower at 90 revolutions per minute. Steam is supplied by two Babcock & Wilcox water-tube oil-burning boilers operating at a pressure of 300 pounds per square inch and 120 degrees Fahr. superheat. The propeller is right hand, solid, four-blades, manganese bronze, 17 feet in diameter and 16 feet, 6 inches in pitch.

Capacity.—The main cargo hatches for Nos. 2, 3 and 4 holes are 22 x 35 feet, and those for Nos. 1 and 5 holes are 22 x 25 feet. The 'tween deck is also served by four sliding cargo ports, each 8 feet, 6 inches long by 8 feet high. A unique feature of these ports is that the bottoms are flush with the top of the main deck plating. Cargo handling arrangements have been worked out with great care to give maximum efficiency.

Speed.—During the sea trial of the *Angelina,* off the Virginia Capes, one run was made in each direction at an average speed of slightly less than 15¼ knots at about 90 revolutions per minute. The hourly fuel consumption for all purposes was well under the guarantee, which is based on 13 knots average sea speed with the ship fully loaded. For their type the *Angelina* and *Manuela* represent the very latest refinements and developments in marine steam engineering along distinctly American lines. It is safe to say that they will compare favorably with any vessels of their size and type in the merchant marine of any foreign nation.

TANKERS

Ocean Tankers.—The largest shipbuilding order in the year was for three, twin screw, diesel tankers for coastwise, barge canal and Great Lakes service and two single-screw turbine-geared ocean going tankers of

15,000 tons each, placed by the Standard Vacuum Transportation Co., New York. Of these the three smaller tankers were awarded to the United Dry Docks Inc., New York, and the two large tankers to the New York Shipbuilding Corp. The outlay was in the neighborhood of $5,500,000. The two larger tankers are still under construction and will not be delivered until 1935. They are 500 feet in length with 65 feet, 9 inches in beam, 37 feet in depth, and will have a deadweight of 15,285 tons on a draft of 29 feet, 10¼ inches. The capacity will be 5,330,000 gallons in ten main double tanks and six summer tanks. Propulsion will be by single screw driven by double reduction geared turbines developing 4,000 shaft horsepower. Speed is to be 12½ knots. Steam is to be supplied by oil fired watertube boilers. Estimated fuel consumption for 24 hours will be 30 tons. They are to trade between the Atlantic seaboard and Pacific coast ports.

Inland Waterway Tankers. — The three smaller tankers named *New Haven Socony,* launched June 1, completed July 23; the *Plattsburgh Socony,* launched June 29, completed Aug. 1; and the *Poughkeepsie Socony,* launched Aug. 3, completed Aug. 29, have all been in service during the year, since their completion. These vessels are generally similar to the barge canal, Great Lakes tankers first developed by the Standard Vacuum Transporation Co. in 1923. They are 260 feet in length overall, 252 feet in length between perpendiculars, 40 feet in molded beam, 14 feet in depth molded. The gross tonnage is 1242 and the cargo capacity on a draft of 12 feet is 13,500 barrels. They are fitted with twin rudders. The speed is 11.4 statute miles per hour. Propulsion is by twin screw each connected to a 375-brake horsepower McIntosh & Seymour, six-cylinder, direct reversible, air injection diesel engine. There are two diesel-driven auxiliary generator sets each driven by a three-cylinder, four-cycle, solid injection McIntosh & Seymour diesel engine developing 95 brake horsepower at 450 revolutions per minute. The engines are connected to Diehl direct current generators of 120 volts each developing 60 kilowatts. Outstanding in the construction of these three small tankers is the choice of riveted construction for two and all-welded construction for one, the *Poughkeepsie Socony.* This is the largest all welded merchant vessel of any type yet to be built in the United States and probably in the world. Throughout her construction the *Poughkeepsie Socony* held the special interest of naval architects and others. It was found in her construction that accepted forms of framing and other structural features were adaptable to welded design. Only in the stem and stern framing and in a few minor details was it necessary to depart from what might be considered the orthodox type of construction.

All Welded Construction. — In speaking of the choice of all welded construction, N. J. Pluymert, naval architect of the Socony Vacuum Oil Co., said: ''While the all-welded hull is no newcomer among service vessels of smaller size and government craft, there doubtless will be some who regard as revolutionary the use of that method for such a vessel as the *Poughkeepsie Socony.* We feel, however, that little more than pioneering courage was required to take advantage of this great advancement in the shipbuilding art and to seize for ourselves the far-reaching economy made possible by the all welded design.

''As ship operators planning to gain the utmost from cheap water transport we could not overlook the lower initial cost nor the immediate saving of 50 tons in weight, which permits 50 tons of additional cargo to be carried as long as the vessel runs. It is possible that from this source we might gain a full free trip every year or so.

''When the time comes that steel fabricators provide appropriately designed shapes for electric welding, I predict new economies that would be even harder to ignore.''

Construction of the riveted hull was taken as the basis for all calculated structural scantlings, so that no difficulty was encountered in obtaining the approval of the American Bureau of Shipping in which the vessel is classed. Fifty tons of deadweight were saved, without sacrifice of strength.

Flat bars were used in the cargo oil spaces of the welded ship for framing beams and bulkhead stiffeners, instead of the usual angles or channels. While flanges are thus eliminated the main advantage is, that, in order to obtain an equivalent section of members the flat bars used are considerably thicker than the standing flanges or webs of conventional members. As a result there is a substantial increase in corrosion resistance in cargo oil compartments, where water ballast is used frequently.

The bracket arrangements, customary in tanker construction, are materially reduced by the use of welded horizontal plate stringers in association with the bulkheads or shell. It is by such means, together with the elimination of connection clips, the reduction of lap and seam widths of plating, rivet heads and the like, that the welded vessel is some 50 tons lighter than the riveted vessel of similar dimensions. Utility of the welded design, however, also simplifies the construction of the vessel from the time of laying down until it is delivered. This advantage is very apparent in assembly. This all welded tanker will naturally be watched with great interest and is likely to prove a factor in the more rapid adoption of welding for larger ship construction.

SHIPBUILDING FOR U. S. COAST GUARD

Coastwise Service.—Though it cannot be called merchant ship construction, the large program of shipbuilding for the United States Coast Guard, undertaken during 1934, has more similarity to commercial vessels than to naval building. The program may be divided into four groups, the first group of five vessels was contracted for at the end of October, 1933, two vessels going to the Defoe Boat & Motor Works, and three to The Pusey & Jones Corp., Wilmington, Del. All of these vessels were scheduled for completion before the end of 1934. Briefly the general characteristics are: displacement, 1000 tons; turbine geared drive at 1500 horsepower; single screw; length overall, 165 feet; length between perpendiculars, 150 feet; beam molded, 36 feet; depth molded, 21 feet; and speed, 12.8 knots. Steam is supplied by two watertube oil-fired boilers. The names of these vessels are *Onondaga, Tahoma, Algonquin, Comanche* and *Mohawk*. They were especially designed for coastwise service or the Great Lakes.

Patrol Boats.—The next group consisted of nine, twin screw, diesel, patrol boats. Contracts for this group were also awarded before the end of 1933, *Dione, Electra* and *Pandora* to Manitowoc Shipbuilding Corp.; the *Atalanta, Ariadne* and *Cyane* to the Lake Union Dry Docks & Machine Works; and the *Triton, Nike* and *Nemesis* to the Marietta Mfg. Co. These vessels were all completed during 1934. They have the following characteristics: of steel construction; length overall, 165 feet; beam molded, 25 feet, 3 inches; depth molded amidships, 13 feet, 2 inches; draft maximum, 8 feet, 6 inches; displacement loaded, 334 tons; propelling machinery, twin screw, Winton diesel engines, direct connected, of 1340 total shaft horsepower; and speed, 16.5 knots.

Harbor Cutters.—The third group consisted of four single screw, diesel electric harbor cutters. Three of these the *Calumet, Navesink,* and *Tuckahoe* were awarded to the Charleston, S. C., Navy Yard, and the fourth, the *Hudson* to the Portsmouth, N. H., Navy Yard. All four vessels were scheduled for completion by the end of 1934 or during January, 1935. These vessels are 110 feet, 6 inches in length overall; 24 feet in molded beam; 12 feet, 7 inches in molded depth; 10 feet, 6 inches in maximum draft; displacement full loaded, about 290 tons; speed, 12 knots. The machinery for each vessel consists of two McIntosh & Seymour six-cylinder, 12½ inch bore by 13 inches stroke diesel engines, each developing 530 brake horsepower and each connected to an electric generator of General Electric make. The single propeller is driven by a direct connected General Electric motor of double armature, developing a total of 800 horsepower at 250 revolutions per minute. There is also on each vessel an auxiliary generator set driven by a two-cylinder McIntosh & Seymour diesel engine, developing 26 horsepower.

Gunboats.—The fourth and most important group includes seven 327-foot 2000-ton ocean cruising cutters of gunboat type. Estimates submitted by the Navy Department for the building of these vessels were accepted and they are now under construction as follows: four at the Navy Yard, Philadelphia, two at the Navy Yard, New York and one at the Navy Yard, Charleston, S. C. They will all be completed sometime during 1935. General characteristics of the ocean cutters are: length overall, 327 feet; length between perpendiculars, 308 feet; beam molded, 42 feet; depth molded, 23 feet, 6 inches; and displacement, 2000 tons. The propelling machinery, in twin screws, is double reduction geared steam turbines of a total estimated shaft horsepower of 7000 or somewhat over. Oil-fired watertube marine boilers will supply steam. Speed will be 20 knots, and the cruising radius will be 8000 miles. These vessels are to have a specially constructed hangar for one airplane. Each vessel will carry two six-inch guns and two anti-aircraft guns, with provision made for additional six-inch guns.

CONVERSION OF FREIGHTERS

Consumers Power.—An interesting conversion took place during the year on the Great Lakes. A typical lake freighter the *Harry Yates* was converted to a modern self-unloading vessel by the American Ship Building Co., for the American Steamship Co., Boland & Cornelius, managers. The vessel is now known as *Consumers Power*. This is the fifth such conversion which has taken place on the Great Lakes since the beginning of 1932. Hoppers were constructed in the holds to serve two bulk conveyors symmetrically arranged fore and aft on each side of the centerline. The two fore and aft conveyors deliver to cross conveyors at the foreward end which in turn dump the material on an inclined conveyor which carries it to the deck discharging to a boom conveyor. The unloading boom is 185 feet in length; the longest ever to be fitted on a self-unloader. It can be swung so as to deliver cargo on the dock abreast of the stem of the ship. To supply the electrical energy to operate the conveying machinery a new 500-kilowatt, 3600 revolutions per minute, 480 volts, 3-phase, 60-cycle condensing turbine, generator set is installed. Steam for this set is supplied from the main boilers.

The principal characteristics of the *Consumers Power* are: length overall, 525 feet; length between perpendiculars, 504 feet, beam molded, 56 feet; depth molded, 30 feet; gross tonnage, 6391; net tonnage, 5082; speed in service, 11½ miles per hour. The propelling machinery which was not changed is a triple expansion reciprocating steam engine developing 2200 indicated horsepower at 90 revolutions per minute. The cargo capacity in short tons is 8940. The total complement in officers and crew is 38. Classification is in the American Bureau of Shipping.

Work of conversion commenced April 12, 1934, and was completed June 29, 1934. It is interesting to note how quickly the *Consumers Power* became a factor in transportation. Immediately upon completion she loaded coal at Toledo for Toronto. After delivering this cargo she proceeded to Sandusky, O., where she took on a cargo of coal for Menominee, Mich. She then proceeded to Alpena, Mich., where she took on a cargo of limestone. This, her third cargo, she delivered at Fairport, O., on July 10. Under ordinary circumstances this vessel can unload a cargo of 8,500 tons in from eight to nine hours.

Pacific Cedar. — Another interesting conversion, this time of an ocean freighter, to a self-unloading bulk cement carrier, was carried out during the year by the Sun Shipbuilding & Dry Dock Co. for the Santa Cruz-Portland Cement Co., San Francisco.

In this instance the shipping board freighter *Pacific Cedar*, built in Japan during the war emergency shipbuilding program and completed in 1920, was converted to a self-loading and unloading bulk cement carrier and given the name *Santacruzcement*. She now operates in coastwise and ocean trade on the Pacific coast and has a capacity of 40,000 barrels of cement. The holds and 'tween decks were rearranged to provide self-trimming bins of hopper formation. These bins opened into two fore and aft scraper tunnels extending the full length of the bins. In each tunnel there is one 4-cubic yard scraper hauled by cables and drag winches for conveying the cement to and over a ramp which forms the continuation of the tunnel and serves a hopper over a 10-inch cement pump at each end for discharging the cement cargo ashore through a pipe line from midships on the bridge deck. To make the necessary alterations and to build the new bulk cement cargo handling machinery, approximately $600,000 was expended. This is a very special type of vessel, and an unusually interesting one in demonstrating the possibility in handling bulk cargo economically and without dependence upon shore equipment.

NEW RIVER TOWBOAT

Peace.—Constant progress is being made in the improvement of design and construction of river vessels. One of the latest and most modern of these is the towboat *Peace*. This vessel was built by the Dravo Contracting Co. She was launched on Aug. 14 and left Pittsburgh on Oct. 25, with a nine-barge tow, on her maiden trip to New Orleans. This voyage is 1,952 miles in length and was completed on Nov. 18 after frequent stops at principal river cities.

Design.—This vessel is of all steel construction with ship-shape form, a model bow and easy sweeping stern line giving full water flow to twin propellers operating in partial tunnels under the stern. Principal characteristics are: length overall, 161 feet; length between perpendiculars, 160 feet; beam, 34 feet; depth, 7 feet, 9 inches. Normal operating draft is 5 feet, 6 inches with a corresponding displacement in fresh water of 560 tons. The gross tonnage is 635 and the net tonnage is 560.

Propellers.—The two propellers are of manganese bronze, 5 feet, 5 inches in diameter, and 4 feet, 8 inches in pitch, each propeller is driven by one, six-cylinder, 14 x 18 inches, direct reversible, solid injection, Winton diesel engine developing 375 horsepower at 250 revolutions per minute.

Auxiliary power is furnished by two, three-cylinder, 8 x 10 inches, Winton diesel engines, each driving a 50-kilowatt electric generator. All auxiliaries are electrically driven. Steam for heating and other purposes is provided by a vertical oil fired boiler, having a 40 horsepower rating. An automatic oil burner, controlled by the steam pressure, operates only when the pressure falls below 14 pounds per square inch.

Rudders.—There are six rudders in all, the two main rudders are located aft of the propeller and are of balanced streamlined form. Auxiliary rudders are located forward of the propeller, one on each side of each propeller. The rudder systems are operated independently by means of direct acting hydraulic engines. The pilot can control the main and auxiliary rudders separately or together as he may desire.

Power and Speed.—Running free, the *Peace,* without tow, has logged 12 miles per hour and has pushed six empty standard 175-foot coal barges at 8-miles per hour. Addition of three similar barges to the fleet reduced the speed only ⅔ of a mile per hour. The engines at all speeds are quiet and remarkably free from vibration. The engine room is as fully equipped as on a modern ocean going vessel.

NEW NAVIGATION AND INSPECTION RULES

During the year tentative revisions were completed of that portion of the general rules and regulations of the Bureau of Navigation and Steamboat Inspection which apply to the design, construction, and repair of boilers. The new rules represent thorough and painstaking labor in applying modern advances to the Bureau's regulations covering marine boilers. The most radical departure is the incorporation in the new rules of a complete code to govern the construction of boilers and pressure vessels by fusion welding. This action was influenced by the fact that fusion welding in the construction of boilers and pressure vessels has been sanctioned for some time by the United States Navy and under rules of the American Society of Mechanical Engineers. As soon as permitted to do so by the rules, after adoption by the steamboat inspection service, the leading marine boiler manufacturers will be ready to furnish this type of construction for merchant marine use. The new rules also contain an excellent modern piping code. Prompt action in adopting the new rules should and will no doubt be taken so that modern practice will be applied to the construction of marine boilers with very definite resultant benefit to the marine industry.

MATERIALS OF ENGINEERING AND CONSTRUCTION

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METALS

Stainless Metals.—Of the many metallurgical accomplishments of the past few years, the development and recent wide application of the "stainless" chromium-bearing steels has been possibly the most outstanding. Many problems and serious handicaps had to be overcome in the development of stainless metal. These included stabilization against weld decay, intercrystallization embrittlement and corrosion at normal temperatures. The solution of these problems is an achievement worthy of mention. It has been found that the incorporation of a relatively small amount of a strong carbide-forming element into the steel forestalls the formation of chromium carbide and the depletion of chromium within the grains which is responsible for the undesirable behavior. Titanium used in this manner "stabilizes" the steel and enormously lengthens its useful life at high temperatures. Columbium is a somewhat more potent element for the purpose though not so available as titanium (Am. Inst. Mining and Metallurgical Engrs., *Metals Technology*, January, 1934). Recent applications of stainless steel include the Burlington streamlined electric train, "The Zephyr," all-metal airplanes, building construction and numerous household appliances.

New alloys of the non-ferrous metals are constantly appearing and further developments, particularly in the field of light structural work, are certain. Outstanding examples of the increased use of aluminum are the Union Pacific streamlined articulated train, a five-car subway train, all-aluminum Pullman cars, and structural shapes and plates for highway bridge construction. It is evident that there will be lively competition particularly between the aluminum alloys and steel alloys, not only for bridges, trains, airplanes, etc., but for other industrial uses and applications.

Effect of Temperature on Metals.—The Joint A.S.M.E.—A.S.T.M. Research Committee on Effect of Temperature on the Properties of Metals has continued its program of determination and correlation of fundamental properties of metals at high and low temperatures (*see* The American Year Book, 1933, p. 716). An investigation sponsored by the Joint Committee has been reported by H. C. Cross (Am. Soc. Mechanical Engrs., *Transactions,* July, 1934) covering studies of cast and wrought 18-8 type chromium-nickel steels of 0.07 and 0.125 per cent carbon. The report contains the results of repeated stress (fatigue) tests and creep tests within the temperature range 1000 to 1200° F.; impact tests at room temperatures, both before and after the several steels had been subjected to sustained stresses at elevated temperatures; metallographic studies of carbide precipitation; magnetic analysis and some corrosion test data. Stresses required to produce failure by fatigue were much higher than those producing creep of 1 per cent in 10,000 hours at corresponding temperatures throughout the temperature range investigated; these differences are similar in nature to those previously found in Joint Committee researches on carbon steels. In both fatigue and creep tests, the 1.12 per cent carbon wrought steels showed higher load-carrying ability than the 0.07 per cent carbon steels. Carbon, therefore, may be said to have a strengthening effect on the creep and fatigue resistance of these austenitic chromium-nickel steels, in line with previously published information.

The needs of industry for materials suitable for use in equipment subjected to high pressures and elevated temperatures (*see* THE AMERICAN YEAR BOOK, 1933, p. 716) continue to make pressing demands on the time and attention of the metallurgist. The materials being offered to meet these new conditions are vastly different from the plain carbon steels formerly used. This is particularly true of the petroleum industry where, as a result of the severe conditions to which metals in a modern oil refinery are subjected, the use of improved steels and alloys has been imperative.

Studies of a 4 to 6 per cent chromium steel, used extensively for heater tubes in oil refineries and found to be subject to embrittlement when cooled after exposure to operating temperatures up to 90° F., are described by H. M. Wilten and E. S. Dixon (Am. Soc. Testing Mats., *Proceedings,* 34, II, 59, 1934). Normal failure of this steel in refinery use was accompanied by creep, resulting in considerable visible swelling and showing for the most part a high degree of susceptibility to temper brittleness. From the results studied, the embrittlement of these steels is thought by the authors to be due to structural alteration of the solid solution similar to aging of duralumin at ordinary temperatures, and it is suggested that this may be the cause of temper embrittlement of steels in general. It is also postulated that this type of aging is similar to temper brittleness, where loss of impact occurs without a corresponding considerable increase in hardness and tensile strength commonly associated with aging of the precipitation type.

Another material that has proved to be suitable for the specific and exacting service demanded of oil-still tubes is the 5 per cent chromium, 0.50 per cent molybdenum steel. A study of the creep properties of this material by H. C. Cross and E. R. Johnson (Am. Soc. Testing Mats., *Proceedings,* 34, II, 80, 1934) has contributed valuable information concerning the effect of carbon content, of heat treatment and resultant grain size, and of variation of directional properties resulting from working during fabrication. Increase in carbon content improved the physical properties and creep resistance materially. Longitudinal material showed better creep resistance than transverse material but the differences were small. In comparing normalized and slow-cooled materials the latter developed better creep properties. After the specimens had been subjected to creep tests, the hardness, impact resistance and short-time tensile properties were determined. From these data it is concluded that subjecting these steels to creep testing at 1100 and 1200° F. has little effect on the hardness, impact resistance, or tensile properties in short-time tests, thus indicating that these steels are quite stable at these temperatures.

Corrosion.—Although much valuable work has been and is being done to mitigate corrosion of metals, this complex problem which involves many variables continues to be of worldwide significance. In reviewing the corrosion problem with respect to iron and steel, F. N. Speller in the Henry Howe Memorial Lecture (Am. Inst. Mining and Metallurgical Engrs., *Metals Technology,* June, 1934) shows that this ''disease of metals'' may be alleviated to a certain degree by changing the environment, by isolating the metal from destructive environment, or by building up the corrosion resistance of the metal, all of which are based upon the principle of forming a protective layer which may vary from a few molecules to an applied coating ½ in. or more thick.

New and useful facts covering the deterioration of pipe lines have been brought to light by the soil-corrosion studies carried on by the National Bureau of Standards since 1922 (*see* THE AMERICAN YEAR BOOK, 1927, p. 577; 1931, p. 667). The extent to which the data obtained to date can be applied in practice is discussed by K. H. Logan (Bureau of Standards, *Journal of Research,* 12, 119, 1934; also Am. Soc. Testing Mats., *Proceedings,* 34, II, 138, 1934). While admittedly the present results are not directly useful in the field, the investigation has served to show that stray electric currents are not the only cause of corrosion but that the type of soil has more effect than the metal used in the pipe. Further work is required to determine the significance of certain tendencies shown by the data.

A Symposium on the Outdoor Weathering of Metals and Metallic Coatings held by the American Society for Testing Materials presented a thorough analysis of the performance data which have been obtained from the extensive atmospheric corrosion tests on ferrous and non-ferrous metals (*see* THE AMERICAN YEAR BOOK, 1927, p. 577; 1928, p. 627; 1933, p. 718) some of which have been in progress for over 18 years. Illustrations are given of proper uses to which the data may be put in the solution of similar corrosion problems.

Record of the corrosion which has occurred over the initial 1-year period at nine outdoor locations in the tests for studying the effect of galvanic action (*see* THE AMERICAN YEAR BOOK, 1933, p. 718) on the corrosion behavior of metals when in contact with dissimilar metals has been reported (Am. Soc. Testing Mats., *Proceedings,* 34, I, 236, 1934). The tests include couple combinations of zinc, aluminum, iron, nickel, copper, tin and lead. The results obtained to date indicate that, due to galvanic action aid to certain complicated reactions, there is a change in corrosion behavior in the case of some metals when in contact with other metals. The changes noted, however, after one year's exposure are too small to be significant, and further conclusions are not warranted until the data from additional exposure periods are available.

Electrodeposited Metallic Coatings.—Valuable progress reports have been made of the corrosion studies of the principal electrodeposited metallic coatings (Bureau of Standards, *Journal of Research,* 13; 331, 519, 1934) being carried on under the joint cooperation of the American Electroplaters Society, American Society for Testing Materials and the National Bureau of Standards (*see* THE AMERICAN YEAR BOOK, 1933, p. 718). Results are reported on atmospheric corrosion tests of the protective value of nickel and chromium on steel at six locations representing rural, suburban, industrial and marine locations after two years' exposure. The thickness of the nickel layer was found to be more important than any other factor. An intermediate layer of copper decreases the protective value of thin deposits but is not detrimental in thick coatings, especially if they are chromium-plated. The customary thin chromium coatings (0.00002 in.) increase the resistance to tarnish, but not the protection against corrosion.

Plated specimens similar to those in the atmospheric exposure tests were subjected to accelerated tests, especially by means of a salt spray and by intermittent immersion in a salt solution. Both tests were found useful for determining the relative quality, and especially the porosity, of coatings consisting of copper, nickel and chromium. These methods do not, however, closely reproduce the types of corrosion produced in the atmosphere and do not serve to detect small differences in protective value.

Grain Size of Metals.—Grain size has been recognized by the metallurgist as an admirable criterion or index of certain characteristics of metals. The great strides that have been made in the investigation of grain size in metals are discussed in a Grain Size Symposium (Am. Soc. Metals, *Transactions,* XXII, No. 10, 1934) which is particularly timely since the control of grain size has become of great industrial importance. The papers comprising the symposium discuss the effect of grain size on such properties of a metal as strength, impact value, machinability, response to carburizing, annealing and normalizing, depth of and distortion during hardening, toughness, ease of forging, and creep strength at elevated temperatures. The A.S.T.M. standard reference grain-size charts for the classification of steels and non-ferrous metals (*see* THE AMERICAN YEAR BOOK, 1933, p. 724) assume increasing usefulness in the light of these developments.

The fact that heats of steel of the same composition often differ materially in their properties and especially in their response to fabricating operations has been recognized. A test for the "P-F (Penetration - Fracture) characteristic" of steel developed by B. F. Shepherd (Am. Soc. Metals, *Transactions,* XXII, No. 10, 1934, 979) holds promise as a valuable and practical method of determining differences between various heats of steel of similar chemical analysis. Four machined specimens, ¾ in. round and 3 in. long are first normalized from 1600° F. by quenching in oil and then hardened by heating for 30 minutes individually to one of four temperatures, 1450, 1500, 1550 and 1600° F., followed by quenching in a 10 per cent brine at room temperature. Each specimen is then notched at the center of the 3-in. length and ruptured by transverse impact. Grain size is determined by matching the case or hardened zone of one of the broken halves with a set of fracture grain-size standards. On the other half of the fractured sample a polished transverse surface prepared not less than 1 in. from the original end is etched for 3 minutes in a 50-50 hydrochloric acid and water solution at 180° F. and the penetration is then measured miscroscopically to the nearest 1/64 in. The P-F characteristic is recorded as 8 numbers, the first four representing the penetration in 1/64 of an inch and the last four, the fracture grain size obtained at each of the hardening temperatures. By use of the test, heats of steel can be classified as definite types which have a definite relation to melting practice, ingot yield, hardening sensitivity and physical properties of the hardened part.

Effect of Sulfur on Steel.—An investigation to determine the effect of residual sulfur (*see* THE AMERICAN YEAR BOOK, 1926, p. 829) in progressively increasing amounts (0.02 to 0.10 per cent) on the service behavior of forging steels at room temperature has been reported by the Joint Research Committee on Investigation of the Effect of Phosphorus and Sulfur in Steel (Am. Soc. Testing Mats., *Proceedings,* 34, I, 1934). The steels investigated were of the plain carbon grade used for ordinary purposes and did not include steels intended for automotive or ordnance use. Tests were made on 1, 2 and 8-in. rounds in the annealed and quenched-and-tempered conditions. With increase in sulfur content, the usual strength properties (tensile strength, yield point, shearing stress and proportional limit in torsion) showed distinct though slight downward trend. No marked or significant changes in the ductility, however, could be associated with the changes in sulfur content. The effect of sulfur variation on the resistance to impact was inconclusive. In summarizing the data, it may be stated of these forging steels that the evidence, though less clear-cut than might be desired, shows no systematic relation between the increasing sulfur contents and the physical properties studied, and points to the conclusion that the physical effects of residual sulfurs in this grade of steel are of such low magnitude that they are masked by other more potent variables.

Aging of Metals.—One of the most important and interesting problems to which metallurgists are now giving attention is the ''aging of metals'' —changes in physical properties occuring with time (Am. Soc. Metals, *Transactions,* XXII, no. 3, 97; no. 6, 505, 1934). The changes most commonly observed are increased hardness, elastic limit and tensile strength, decreased ductility and impact; also changes in electrical conductivity and return of the yield point in cold-worked metals. While the exact mechanism of this aging has not been fully demonstrated, it is believed to be a form of ''precipitation hardening'' which varies with the degree of cold work. According to this theory, the precipitation along grain boundaries and along some crystallographic planes of submicroscopic particles cause slip interference which brings about changes in properties of the metal. Aging is of great industrial importance, especially in the drawing and deep stamping of sheet steel where diminished ductility and increased yield point and the tendency to form stretcher strains seriously limit the fabricating processes. It is important to note that ''non-aging'' iron and steel sheet has been recently developed and made available in the United States (*Metals & Alloys,* May, 1934, p. 110). Presumably this is of the same general nature as the German ''Izett' steel available now for several years (*Metals & Alloys,* March, 1932, p. 61).

Light Metals and Alloys.—A comprehensive compilation of data on the service characteristics of light metals and alloys resulting from recent developments and numerous applications of these alloys to a variety of industrial needs has been prepared (Am. Soc. Testing Mats., *Proceedings,* 34, I, 277, 1934). This wealth of information on the metallurgical characteristics, physical and mechanical properties and methods of surface protection of aluminum and magnesium alloys will be of inestimable value to the engineering profession in the use of these metals for modern equipment and processes.

Powder Metallurgy, so-called, is quietly attracting considerable attention. Briefly, it consists in the mixing of certain metals in powdered form and, while under high pressure, subjecting the resulting solid material to a temperature near the fusion point, thus producing a fairly homogeneous metal or alloy product. Among the early developments are the production of metal bearings, copper and bronze wire, tungsten wire and other products, sponge iron and stainless metal compositions. The fact that there are approximately 20 metals obtainable in the powdered form emphasizes the possibilities of this new type of synthetic metallurgy.

NON-METALS

Cement.—Due to current trends toward special cements for particular types of concrete construction (*see* THE AMERICAN YEAR BOOK, 1933, p. 720), there has been a pressing need for further knowledge concerning the nature of compounds existing in cement and particularly the influence which its chemical nature has on the properties of mortars and concretes. A monumental investigation of 121 cements inaugurated in 1930 by the Portland Cement Association to study 72 different compositions in relation to their effect on strength, length changes, resistance to sulfate waters and to freezing and thawing of mortars and concrete has revealed significant results which are reported by H. F. Gonnerman (Am. Soc. Testing Mats., *Proceedings,* 34, II, 244, 1934). The data cover 74 of the cements, laboratory - prepared and ground to the same fineness (87.5 per cent passing No. 200 sieve), all of which were made from raw materials consisting essentially of limestone and clay with occasional additions of flint, bauxite, iron ore or dolomite in order to obtain the desired compositions.

The wealth of data obtained show that the principal strength-giving constituents of portland cement are the tricalcium and dicalcium silicates, the former being effective up to and beyond the 28-day period while the latter is largely responsible for strength improvement beyond this period. Tricalcium aluminate contributed to strength only up to 28 days, but the rôle of tetracalcium aluminoferrite is not so clearly indicated. Both silicates contribute equally to contraction in air but to a less degree than the two alumina compounds. Of the four major compounds, tricalcium aluminate appeared to be the only one which reduced the resistance of mortar and concrete to magnesium and sodium sulfate solutions (2 per cent). In general, there was a noticeable decrease in the expansion of cylinders stored in the sulfate solutions and in water with decrease in the tricalcium aluminate content. On the basis of the expansions and losses in weight exhibited by concrete cylinders subjected to an accelerated freezing-and-thawing test, the higher the total content of tricalcium and dicalcium silicate of the cement the greater the resistance of the concrete, and the greater the content of tricalcium aluminate and tetracalcium aluminoferrite the lower the resistance. The effects of variation of the MgO contents and its substitution for CaO in the raw mix are also discussed.

The data show a very interesting confirmation of the fundamental concept that the properties of a cement must be a function of the compounds present rather than of the components. The degree of success attained in these studies warrants the belief that as new information on the chemical nature of cement clinker is developed there will be a corresponding advance in our knowledge and understanding of the causes in differences in behavior of portland cement—so is progress made.

Curing Concrete.—Studies carried on at the laboratories of the Portland Cement Association on the effects of moist curing and steam curing on the strength, absorption, permeability and volume changes of concrete have yielded some interesting results. The tests after moist curing, in which normal and high-early-strength cements are used, as reported by A. G. Timms (Am. Soc. Testing Mats., *Proceedings,* 34, II, 329, 1934), show that typical water-cement-ratio strength curves for moist-cured concrete were obtained regardless of the type of cement or test age. A significant feature of the strength tests was the small difference between the strength of moist-cured and air-cured specimens at ages greater than 28 days exhibited by the high-early-strength cement. For both types of cement and all water contents studied, increased expansion of mortars in moist air, but decreased shrinkage in dry air at 18 months resulted from longer periods of moist curing. The difference in volume change between the normal portland and high-early-strength cement was not of great importance. That moist curing increases the resistance to freezing and thawing during early ages is well established by the author's data.

Studies of high-pressure steam curing by C. A. Menzel (Am. Concrete Inst., *Proceedings,* 30, 125, 1934) indicate that with proper selection of aggregates and mixtures, concrete can be obtained within one or two days after molding that will have substantially greater strength and lower volume change than concrete moist cured for 28 days at normal temperatures. The results indicate that both the strength and volume change of steam-cured concrete can be controlled within wide limits by the presence or absence of finely divided silica in the cement paste and by the temperature and duration of the effective steaming period.

Plastic Flow of Concrete.—Studies of plastic flow of concrete cylinders and reinforced columns under sustained compressive stress carried on at the University of California for the past seven years have been reported by R. E. Davis, H. F. Davis and J. S. Hamilton (Am. Soc. Testing Mats., *Proceedings,* 34, II, 354, 1934). Plastic flow, according to the authors, results from a combination of causes: movement of particles within the mass (viscous flow); crystals in the mass may slip (crystalline flow), corresponding to creep in metals; and loss of water in the concrete mass (seepage). Among the conclusions it is pointed out that (1) flow in plain concrete may continue for periods of more than seven years, although the major portion of the deformation takes place within a year or two after application of load, (2) flow in reinforced concrete columns may practically cease after about one year under load for dry-stored columns, and after a few months for wet-stored columns, (3) the major portion of plastic flow is apparently due to seepage of colloidal water from the cement gel, although it is believed that some deformation may take place due to viscous and crystalline flow, (4) flow is markedly influenced by moisture condition of storage, moisture content of concrete, age of concrete, grading and character of aggregate, intensity of stress, size of mass, and reinforcement, (5) due to flow, the stress in the steel in reinforced concrete columns may in time reach or exceed the yield strength of the steel, while the concrete stress may be reduced to a value approaching zero. The tests are still in progress.

Temperature Effects on Concrete.—Laboratory tests of concrete under conditions approximating those frequently encountered when placing concrete in cold weather are described by A. G. Timms and N. H. Withey (Am. Concrete Inst., *Journal*, 5, 159, January-February, 1934; also 6, 165, November-December, 1934). In this study, 3 by 6 in. specimens made with both normal portland and high-early-strength cements and water contents of 4½, 6 and 9 gals. of water per sack of cement were used, the mixes having the same consistency. The specimens were exposed to air temperatures of 50, 33 and 16° F. after moist curing at the temperature of pouring (either 70 or 50° F.) for various lengths of time. After the cooling period some of the specimens were warmed in air at 70° F. with and without additional moisture for different lengths of time. The most significant information developed by the tests was the importance of the strength of concrete at time of exposure in influencing the later strengths. The desired initial strength can be obtained by the use of lower water contents, longer preliminary curing or the use of high-early-strength cement. The 28-day strengths obtained at storage temperatures of 50 and 33° F. were 50 to 75 per cent of those obtained with concrete moist-cured at 70° F. When the development of normal strength of concrete has been retarded by exposures to low temperatures the concrete can be brought to practically full potential strength by saturation with warm water for a sufficient period. The tests indicate that when the temperature of exposure is from 33 to 50° F. the initial curing at 70° F. should be at least three days for normal cement and at least one day for high-early-strength cement. When the temperature of exposure is below freezing, these minimum initial curing periods should be materially increased.

Evaluating Concrete Admixtures.—A method of evaluating concrete admixtures from the standpoint of their ability to promote workability in concrete mixtures has been described by E. R. McMillan and T. C. Powers (Am. Concrete Inst., *Journal*, 5, 325, March-April). Preliminary studies reported earlier (*see* THE AMERICAN YEAR BOOK, 1933, p. 721) indicated that workability of concrete is determined to a much greater extent by the quantity and consistency of the paste than by the materials of which the paste is composed. The purpose of the studies now reported was to permit of an economic determination, on the basis of concrete strength, of the replacement of various amounts of cement in a mix with each of a number of types of admixtures. The principle of this test program was that the quantity and consistency of the paste are basically more important than its components and that the importance of admixtures rests solely in any economy that can be effected by their use. All mixes were made as nearly as possible with identical properties, such as mortar voids, aggregate gradings and paste consistency. Three mixes were used, with paste contents of 27.8, 25 and 24 per cent, respectively. Then various amounts of cement were replaced by admixtures, keeping the paste content and other characteristics constant. The studies reported indicated that the physical effect of adding admixtures will depend upon the original condition of the mix; it is detrimental in dry mixes and may or may not be beneficial in wetter mixes. Admixtures are most effective in low-strength concretes. Aggregate gradation is the most important factor in securing workability, and the use of additional cement or of an admixture should only be employed as a last resort.

Brick and Reinforced Brick Masonry.—Laboratory tests by W. C. Rueckel and R. B. Keplinger (Am. Soc. Testing Mats., *Proceedings,* 34, II, 480, 1934) indicated the advantages of the commercial application of de-airing in connection with the dry-press process in manufacturing clay products, particularly the uniformity of properties obtainable in dry-press brick. This method, which provides for evacuation of the air content of the clay during its preparation, results in higher specific gravity of the product, more uniform quality, higher crushing strength, higher modulus of rupture and lower absorption. The authors point out that materials now unusable by the stiff-mud process may be worked satisfactorily and products and types of ware not commercially possible by the stiff-mud process may be made when de-aired.

The problem of water transmission through masonry has become of importance due to tendencies in recent years of using thinner walls and freely exposed masonry, together with the increased speed of construction and the diversity of building units and cementing materials. The problem is partly one of construction but is also concerned with the properties of masonry materials and the characteristics of combinations of these materials. Presentation of data before various engineering societies and in the technical press has indicated much difference of opinion and at the same time has pointed to the seriousness of the problem. A study of the properties of mortars and brick in their relation to bond reported by L. A. Palmer and D. A. Parsons(Bureau of Standards, *Journal of Research,* 12, 609, 1934) contains much data pertinent to this problem. A further study by these authors (Am. Soc. Testing Mats., *Proceedings,* 34, II, 419, 1934) of permeability tests of 8-in. brick wallettes emphasizes the importance of such factors as the water-retaining properties of the mortar and absorption rate of the brick. Another phase of the problem dealing with separation cracking between brick and mortar is discussed by C. C. Connor (Am. Soc. Testing Mats., *Proceedings,* 34, II, 454, 1934). In this study of brickwork covering 38 existing buildings in which 6 different mortar mixes and 36 types of brick were used in different combinations, visible cracks in the brickwork constituted the important measure. Within reasonable limits the workmanship factor does not influence cracking as much as the mortar mix, the rate of absorption of the brick and the texture of the brick surface. The importance of proper combinations of brick and mortar was indicated.

The composite use of steel reinforcement and brick masonry continues to receive attention. Further studies of reinforced brick masonry columns by M. O. Withey (Am. Soc. Testing Mats., *Proceedings,* 34, II, 387, 1934) have confirmed in general the conclusions of previous investigations as to the structural behavior of this type of reinforced masonry (*see* THE AMERICAN YEAR BOOK, 1933, p. 721). These test data show that with a very strong brick and mortar, longitudinal steel reinforcement of 7 per cent and lateral reinforcement of 2½ per cent, crushing strengths of 5000 lbs. per sq. in. may be obtained on gross area and 7000 lbs. per sq. in. on core area alone. With good materials and workmanship, reinforced brick masonry columns should be safe under static loads with a factor of safety of 4; with high-strength brick and mortar reinforced with both longitudinal steel and hoops, a factor of safety of 3½ is probably suitable.

Soils.—Research and investigation of testing instruments and technique in the examination and evaluation of soils and studies of their influence on highway construction, carried on at the U. S. Bureau of Public Roads, are described by C. A. Hogentogler and E. A. Willis (Am. Soc. Testing Mats., *Proceedings,* 34, II, 693, 1934). This work has yielded a wealth of knowledge on the physics of subgrade soils which is of practical value to the engineering profession. Soils do not have well-defined and fairly constant physical characteristics like other materials but exhibit five basic physical properties which control the performance of soils for engineering purposes, namely, stability, compressibility, elasticity, permeability and capillarity. These properties of soils depend upon the changes in moisture content, the degree of compaction and amount of disturbance of the soil from its natural structure.

Tests to disclose these five basic characteristics responsible for all deformations of soil regardless of causes comprise four types as follows: (1) disturbed soils and those so close to the surface to be influenced by change of moisture, temperature, frost, etc., are tested in a dried and powdered state for shrinkage, plasticity, etc., to disclose the characteristics of the soil constituents exclusive of soil structure; (2) soils to be stabilized with admixtures or manipulation in practice are tested in samples prepared according to the construction procedure for properties required in stable fills, subgrade sand road surfaces; (3) soils located below the line of seasonal change are tested, by means of undisturbed samples in the laboratory or loading the soil in place in the profile, for such engineering properties as compressibility, elasticity and stability which are furnished by both soil structure and soil materials; (4) soils located below the line of seasonal change whose structure is disturbed by the penetration of piles or other construction operations, are investigated by loading test piles in place or samples remolded from natural structure and at natural moisture content in the laboratory.

Based upon constituent materials, physical properties and performance, the practical application of these tests in different phases of highway construction has resulted in tentatively classifying subgrade soils into eight groups, identified by definite test limits and requiring different design features in roads laid thereon.

Water as an Engineering Material.—Waters used for industrial purposes are complex chemical solutions and not just simple coumpounds of hydrogen and oxygen. That water is a basic engineering material and accordingly requires for its proper industrial use definite specifications and accurate methods of analysis was pointed out by S. T. Powell in the Edgar Marburg Lecture (Am. Soc. Testing Mats., *Proceedings,* 34, II, 3, 1934). He emphasized the fact that water containing minerals such as lead, zinc, fluorides, silver, nickel, manganese, etc., even though present only in minute amounts, had a deleterious effect both on health and on industrial processes. Since, obviously, public water supplies can be treated only for sanitary and health requirements, the lecturer urged the development and use of precise methods sufficiently delicate to detect the presence of these minerals. As an illustration of the importance of constructive research in this field as a means of furthering our knowledge of water analysis, he described the studies of scale in boilers resulting from mineral deposits at high temperatures and pressures which led to the development of a petrographic method of analysis. By this method in which thin sections of boiler scale are examined miscroscopically in plane polarized light, it is possible to identify a mineral by the color, shape, index of refraction, etc., of its crystals. The method has revealed crystalline forms not previously identified. This method of microanalysis and other recently developed procedures for analyzing waters and their mineral deposits, such as the spectrographic and polarographic methods, are believed to offer numerous possibilities for the solution of many problems now unsolvable in the critical study of water as an engineering material.

TESTING

Structural Model Testing. — The testing of structural models as an aid to and a check on design theory, previously possible only to a limited extent and requiring numerous assumptions, reached a new high plane as the result of studies at Princeton University of a stainless steel tower model of the Golden Gate Bride (*Engineering News-Record,* Jan. 25, 1934, p. 125). This use of a cellular model having elastic properties similar to bridge steel and more nearly representative of the actual structure was made possible by two additional important developments—the fabrication of stainless steel sheets less than 0.02 in. in thickness, and ''shot-welding,'' a special resistance-welding process. It is also notable that since the model is an actual small-scale prototype of the structure, it is susceptible of analysis by the same methods as those used for the bridge tower.

That one of the most important problems in the designing and building of structural engineering models is the selection of a suitable material for the model was shown by A. V. Karpov (Am. Soc. Testing Mats., *Proceedings,* 34, II, 663, 1934) who described studies of many materials for use in structural models, with particular reference to dams. A rubber litharge compound was observed to be the most satisfactory material known at present for an arch dam model. The principal disadvantage of the rubber compound is that its value of Poisson's ratio is much higher than that of the concrete used in the prototype.

High-speed Fatigue Testing. — Present methods for determining the endurance limit of materials are time-consuming and relatively expensive. A shorter and inexpensive method of determining the fatigue properties of metals using a rotating cantilever-beam type of machine driven at high speed by an air turbine operating over a range of speeds from 5000 to 30,000 r.p.m. is described by G. N. Krouse (Am. Soc. Testing Mats., *Proceedings,* 34, II, 156, 1934). It has been found that within practical limits even considerable variation in speeds has little effect upon test results, which effect may be estimated with a fair degree of accuracy. This rapid, economical method of high-speed repeated stress testing permits the use of simple, inexpensive test specimens and warrants further study.

Acoustic Strain Gage.—Interesting apparatus and procedure using the vibrating wire method described by N. Davidenkoff (Am. Soc. Testing Mats., *Proceedings,* 34, II, 847, 1934) for measuring deformations in engineering structures is another valuable addition to those developed in recent years (*see* THE AMERICAN YEAR BOOK, 1930, p. 633; 1932; p. 674) for the remote recording or determination of stresses accurately in structures under both static and dynamic conditions. The method depends upon the measurement of the pitch or frequency of vibration of a stretched wire, which is a measure of the stress applied. After the wire is under stress an electromagnet causes it to vibrate. The sound is transmitted to a recording station where it is matched against a calibrated wire vibrating under known stress. Many successful applications have been made in the measurement of stresses in civil engineering structures, such as mass concrete, earth pressures, elasticity of rock massifs, and a number of special applications to mechanical problems. In practice the error in measuring strains does not exceed 0.00001 in. per inch.

Calorimeter for Cement Testing.—The ''vane calorimeter,'' a new apparatus for measuring both the rate and total amount of heat liberation of cements under a variety of conditions, is described by R. W. Carlson (Am.

Soc. Testing Mats., *Proceedings,* 34, II, 322, 1934). In principle, this device consists of measuring by electrical-resistance thermometers the rate of heat transfer from a central metal cup holding the hydrating cement sample, along four metal vanes to an outer shell. The calorimeter is surrounded by a kapok covering or buried in the ground where the temperature of the surrounding material is fairly constant.

Service Tests for Pavement Materials. — A device for correlating laboratory testing of highway materials with service behavior is described by A. T. Goldbeck, J. E. Gray and L. L. Ludlow, Jr. (Am. Soc. Testing Mats., *Proceedings,* 34, II, 608, 1934). The paving materials are placed in a 14-ft. circular track and subjected to the action of a roller or pneumatic tired wheel. The reinforced-concrete track, 18 in. wide and 6 in. deep, is provided with facilities for controlling moisture and has other advantages for traffic and subgrade control not existing in service tests. The versatile nature of the apparatus is indicated by its use for studying problems quite diverse in nature, such as for testing the inherent stability of aggregates of various gradations, determing the value of stone screenings as a blanket layer under macadam, the effect of percentage of bitumen and characteristics of aggregates on stability of road-mix surfaces, the resistance of aggregates to crushing under traffic and investigations of cold-lay bituminous mixtures.

Particle Size.—Another type of suspension turbidimeter for determining the specific surface of cement and similar granular materials (*see* THE AMERICAN YEAR BOOK, 1933, p. 723) is described by Alexander Klein (Am. Soc. Testing Mats., *Proceedings,* 34, II, 303, 1934). The change in intensity of a beam of light passing through a sample of cement suspended in castor oil is measured by its effect on a photronic cell which is connected with a low-resistance microammeter. From these observations the specific surface is calculated mathematically. The distinguishing feature of this turbidimeter lies in the method used to determine the "capacity factor" which defines the ability of the particles to absorb light and is influenced by the size and shape of the particles. The apparatus permits rapid determinations (a test requiring only 20 minutes) and it is particularly adaptable to commercial plant control and routine testing. Measurements can be made with sufficient accuracy to detect changes in a given material of 1 per cent.

Realization of the importance of the gradation of materials used in the construction of the earth dam at Cobble Mountain Dam, Westfield, Mass., made necessary an elaborate research program carried on during construction and which resulted in the development of a specially designed elutriator described by H. H. Hatch (Am. Soc. Civil Engrs., *Transactions,* 99, 206, 1934; also Am. Soc. Testing Mats., *Proceedings,* 34, II, 739, 1934), for determining particle size of hydraulic-fill dam materials.

Fire Tests of Wood.—A study of the more important laboratory tests for measuring the combustibility of fire-retardant wood (*see* THE AMERICAN YEAR BOOK, 1929, p. 629) has been reported by E. F. Hartman, A. S. Williams and R. C. Bastress (Am. Soc. Testing Mats., *Proceedings,* 34, II, 754, 1934). Information desired in such tests must include resistance to ignition, resistance to flame penetration, tendency to support or communicate flame, loss in weight or strength, and tendency to smolder or glow after removal of the igniting flame. Outstanding conclusions of these extensive studies of the shavings, crib, timber and fire-tube tests indicate the desirability of using two tests, rather than a single method, for securing the necessary data. The shavings test appears to be unsatisfactory but adequate test results are obtainable by combinations of any two of the crib, timber or fire-tube tests. The crib test was found to be the best single test since it is easily performed, requires no expensive equipment and gives information on every factor of importance, except possibly flame penetration.

STANDARDIZATION

New Specifications and Test Methods. — Further strides were made during the year in the establishing of standard specifications and methods of tests for materials of engineering and construction. This progress in the promulgation of technical standards has resulted from the continued development, improvement and application of such materials made possible by a more fundamental knowledge and the advances made in testing technique and analytical procedure. The American Society for Testing Materials, which devotes its entire facilities to both of these ends, issued during the year 32 new specifications and 20 methods of tests for materials not previously standardized. In addition, 28 existing specifications and 37 methods were brought up to date; 49 new standards were adopted or amended and revisions were tentatively issued for 18 current standards.

Alloy-steel Pipe and Castings.—New specifications for alloy-steel pipe and castings for service at temperatures from 750 to 1100° F., which cover a number of grades of both ferritic and austenitic steels, were especially timely, since the severe service requirements resulting from the use of elevated temperatures and high pressures in power plants, petroleum refineries and other industries have necessitated the use of higher quality piping materials. A completely revised specification for cold-rolled strip steel, covering five commercial grades or tempers, includes detailed information of practical value which will insure satisfactory material for the many applications that this product is called upon to meet. An important specification, resulting from the improvements in quality of wrought iron was that for wrought-iron plates, which also recognizes that better transverse physical properties are obtainable by proper rolling. Three new specifications for copper-silicon alloys in the form of sheets, plates, rods, bars and shapes are the result of the recent studies of copper alloys looking toward the replacing of tin, a ''strategic metal.''

Cement Tests.—In line with the studies of cement composition and the rôle it plays in concrete construction, as mentioned earlier, serious attention has also been given to new and improved standard test methods. A comprehensive cooperative study of the plastic mortar test on 12 cements by 10 laboratories resulted in the standardization of apparatus and procedure for preparing and testing 2-in. cubes as a measure of compressive strength. Due to increased fineness in grinding of present-day cements, sieves are of little assistance in determining particle size distribution. The turbidimeter (*see* THE AMERICAN YEAR BOOK, 1933, p 723) has been found to be a rapid and accurate method for determining the fineness or specific surface of cements and the standardization of this apparatus and procedure was particularly timely. The methods of chemical analysis of cements have been revised and brought up to date.

Ground Fire Clay.—Important contributions in the standardization of fire-clay refractories were new specifications for ground fire clay used as mortar in laying up fire brick in furnace construction, a specification for refractories used in incinerators, a test for permanent linear change of refractories, and panel test methods for determining the thermal and structural spalling of refractory brick, which are suitable for forecasting the performance of the brick in service.

Pigments. — Several varieties of titanium pigments, an improved high strength lithopone and a pure zinc sulfide pigment have recently attained commercial importance and merited the adoption of specifications.

Fuel Oil.—Specifications covering six grades of fuel oil for various types of fuel-oil-burning equipment was an important contribution in the petroleum field in view of the increasing use of this type of fuel for both industrial and domestic use.

Emulsified Asphalts.—The general use of bituminous paving emulsions in road construction (*see* THE AMERICAN YEAR BOOK, 1931, p. 671) resulted in the development of a number of emulsified asphalts differing in composition and physical characteristics. Five new specifications covering the important types of asphalt emulsions were issued this year, together with a complete set of test procedures for differentiating between the suitable and unsuitable products. A method for the separation of liquid asphaltic road materials was the culmination of an elaborate cooperative test program started in 1926 of various distillation methods for the separation of the base and flux of asphaltic cut-back products.

Creosote in Timber Treatment.—Specifications for creosote and for creosote coal-tar solution for use in the preservative treatment of timber, developed jointly by the American Society for Testing Materials, the American Railway Engineering Association and the American Wood-Preservers' Association, make these the generally accepted standards for preservatives of this type.

Classification of Coals.—Culminating six years of fact finding and research on origin, properties and uses of coal, specifications were prepared for the classification of coals by rank (according to degree of progressive alteration in natural series from lignite to anthracite) and for the classification of coals by grade (according to calorific value, ash, sulfur content and ash-softening temperature).

Rubber Abrasion.—Tests for measuring the resistance of rubber products to abrasive wear have been under study for some time (*see* THE AMERICAN YEAR BOOK, 1927, p. 581). While no single test has yet been developed which is satisfactory under all conditions, there are six methods which have been found to give valuable technical information, and these have been standardized. There is urgent need for standardization in this particular case and it is expected that considerable benefit will be derived from the use of these methods, which will make results from different laboratories comparable and further stimulate the preparation of a single procedure for measuring the resistance of rubber to abrasion.

Wool.—In response to an urgent need for purchase requirements for woolen yarns, two new specifications were prepared, one for woolen yarns and the other for worsted yarns. A method for estimating hard scoured wool in wool in the grease was also developed.

Statistical Data Presentation.—During the past several years considerable attention has been given to the application of statistical methods to the interpretation and presentation of data (*see* THE AMERICAN YEAR BOOK, 1932, p. 674; 1933, p. 723). Examples of the practical application of such methods to problems of specifying and controlling quality of materials, particularly where such control can be measured only by sampling, were discussed before the American Society for Testing Materials (*Proceedings*, 34, II, 877, 1934). The information presented showed the significance of two simple criteria of acceptance and rejection that are sometimes incorporated in specifications, in connection with requirements imposed on individual quality characteristics of a product or material. The advantages to both the consumer and producer, resulting from the establishment of a quality control program in a manufacturing plant, were also shown.

COMMERCIAL AVIATION

BY ANDREW F. HAIDUCK

BELLANCA AIRCRAFT CORPORATION

GENERAL

The most spectacular and significant index of the progress of commercial aviation in the United States was furnished by the results of the classic race from London to Melbourne. Although the race was won by a racing airplane of no commercial use designed specifically for this event, the most outstanding performance was the winning of second and third places by two American transport planes of the type being flown daily in scheduled transcontinental air transport operations. The entire world of aviation was made cognizant of the superiority of the air transportation system laboriously built up in the United States during the past ten years.

SCHEDULED AIR TRANSPORTATION

Passengers. — The value of air transportation to the traveler is best proved by the fact that passenger traffic increases steadily, whatever other difficulties and obstacles may be faced by air-transport operators. Aircraft improved in speed and passenger comfort help to account for this acceptance of air transportation. Another leading factor is frequency of schedules. Hourly flights on air lines are not new to the scheduled air-transport system of the United States. But frequency of schedules has, in some cases, been increased this summer. One route schedule calls for QE flights a day, in each direction, averaging Q trip an hour during most of the daylight period, with some additional trips after dark and others provide for 5, 6, 7, and 8 round trips daily.

American-operated air lines (domestic and foreign extensions) flew 21,517,658 miles and transported 241,772 passengers and 1,573,914 pounds of express in the first half of 1934. With respect to passenger-miles flown, express carried, and passengers carried, the statistics for the first 6 months of 1934 show increases over the corresponding period in 1933. There were less miles flown in 1934 than in 1933. Passenger-miles flown were 76,642,393 in the period January-June 1933, as compared to the 93,571,572 figure for the first 6 months of 1934. (A passenger-mile is the equivalent of 1 passenger flown 1 mile). The average length of trips made by scheduled airline passengers on the domestic lines (those operating within the borders of the United States) during the first six months of 1934 was 394 miles. This is a higher average-length trip than has ever before been recorded.

Passengers are not only making longer journeys by air but are also occupying more of the space available. In May, 1934, 57 per cent of the seating space on craft of the domestic lines was taken. The highest percentage of seating space used in the first 6 months of 1933 was 54 per cent in June, 1933. In computing percentage of available space used, the Bureau of Air Commerce compares passenger-miles (1 passenger flown 1 mile) with passenger seat-miles (number of seats in air-craft multiplied by miles flown). Thus, an empty seat for a portion of an air-liner's run affects the percentage.

Mail.—The abrupt cancellation of air mail contracts in March makes an accurate comparison of operations in 1934 with those of the previous year impossible. At the end of the year all contracts were still on a temporary basis. However policies of the United States Government with respect to air mail are being considered by a Presidential commission which is to enquire into every phase of American aviation and report to Congress by February, 1935. Postage for air mail was reduced on July 1 from 8 cents for each additional ounce, to 6 cents per ounce or fraction thereof. The reduction is particularly attractive for heavy letters. Under the old rate a 2-ounce letter had to be prepaid with 21 cents postage; the new rate calls for 12 cents for a letter of that weight. Following a period of operation by the Army Air Corps, the airmail routes of the United States have been let out to private operators under temporary contracts. The maximum rate permitted for carrying the mail under the permanent contracts will be 33⅓ cents per airplane-mile for a load not exceeding 300 pounds of mail, and an absolute maximum of 40 cents per airplane mile. The Interstate Commerce Commission has been given authority to review airmail rates and to fix rates of compensation, subject to the maximum fixed by law. Specifications as to speed, load capacity, and safety features of mail-carrying aircraft are to be furnished to the Postmaster General by the Secretary of Commerce, who also is directed to prescribe maximum flying hours of pilots.

Express. — Air express poundage for the first six months exceeded by far the amount for the same period in 1933. This business, though less extensive in the aggregate than either mail or passenger traffic, nevertheless has grown faster than either of the other two during the past five years. Air express carried was 1,573,014 lbs. in the first six months of 1934, a substantial increase over the 1933 figure of 1,055,876 lbs.

Schedules.—In spite of the air mail controversy operators have courageously installed new airplanes on their routes with impressive results. On Aug. 1, 1934 Transcontinental and Western Air inaugurated an overnight service between New York and Los Angeles, the first dusk to dawn transport schedules between the Atlantic and Pacific Oceans. The new planes in use on this route have a high speed of 217 miles per hour. It is expected that 41 of these transports will be in service at the end of the year. More air transport operations are carried on at night than ever before. In fact flying sleepers were first introduced this year on the route between Dallas, Fort Worth and Los Angeles. The spacious upper and lower berths of these modern airlines are one inch longer than those of the standard American sleeping car.

Personnel.—There were 5,942 persons in the employ of American operated air lines on July 1, 1934 of which 497 were pilots, 233 were co-pilots, 1,939 were mechanics, 1,762 belonged to other hangar and field personnel, while the remainder 1,511 were employed in the offices.

MISCELLANEOUS FLYING

Miscellaneous operators carried 571,693 passengers and flew 36,780,157 miles during the first six months of 1934. Miscellaneous operations include commercial services, pleasure flying, instruction of students and experimental flying, scheduled air transport activities which are not included under this category, accounted for 241,772 passengers and 21,517,658 miles during the same period. Compared with operations during the similar period in 1933, the miscellaneous operators showed increases in both listings. In 1933, January-June, 32,748,157 miles were flown and 434,586 passengers carried.

SUMMARY OF AIR TRANSPORT OPERATIONS

Miles of American-operated air transport routes:	
Domestic	27,988
Foreign	22,790
	50,778
Miles in operation with United States mail:	
Domestic	26,358
Foreign	18,821
	45,179
Miles in operation with passengers:	
Domestic	26,579
Foreign	22,790
	49,369
Miles in operation with express:	
Domestic	27,988
Foreign	22,717
	50,705
Airplane-miles scheduled daily (average):	
Domestic	138,746
Foreign	17,954
	156,700
With United States mail:	
Domestic	90,190
Foreign	10,779
	100,969
With passengers:	
Domestic	124,998
Foreign	17,954
	142,952
With express:	
Domestic	138,746
Foreign	17,808
	156,554

AIRCRAFT ACCIDENT RECORD

Accidents.—American operated air passenger lines flew 796,950 miles per accident in the first six months of 1934. There were 27 accidents in 21,517,658 miles of flying. In six accidents passengers or employees of the lines were fatally injured. The total number of passenger fatalities was 16, pilot fatalities numbered 6, copilots 3, and members of aircraft crews 4. Passenger miles flown per passenger fatality were 5,848,223. In January-June 1933 the airlines had 48 accidents in 25,862,120 miles of flying, making the miles flown per accident figure for the 1933 period 538,794. There were 5 fatal accidents in the first six months of 1933, fatalities including 4 pilots and 2 passengers. Passenger miles flown per passenger fatality in the 1933 period were 38,321,196.

Causes. — Causes of the 27 accidents which occurred in scheduled flying during the first six months in 1934 were divided as follows:

	Per cent
Personnel errors	52.04
Power plant failures	11.85
Airplane failures	18.51
Weather	14.82
Airport and terrain	.93
Other causes	1.85

Government Regulations. — New regulations for the airlines in the interests of safety were promulgated by the Bureau of Air Commerce. Outstanding among them were the following: 1. Multi-engine aircraft must be used during hours of darkness; 2. Multi-engine aircraft operation over certain routes in certain sections of the country is safer than single-engine aircraft and therefore compulsory; 3. Limitation of flying time of a pilot to 100 hours a month.

In addition the Government's authority to investigate accidents has been broadened so that public hearings may be held and public statements made as to the causes of individual accidents. This was brought about by an amendment to the Air Commerce Act and applies to all aircraft accidents in both scheduled and non-scheduled flying.

AIRPORTS

Since airports are the terminals for airlines, the establishment of additional airports is essential to the continued progress of air transport. On Nov. 1, 1934 there were 2,254 airports and landing fields. Of this number 684 were municipal airports, 575 commercial airports and the remainder divided among Army, Navy and intermediate fields. A detailed subdivision of the number of airports as of Nov. 1, 1934 follows:

Municipal airports	684
Commercial airports	575
Department of Commerce intermediate fields	255
Army airdromes	57
Naval air stations (including Marine and Coast Guard)	24
State operated fields	33
Marked auxiliary fields	560
Private fields	46
Fields for miscellaneous Government activities	20
Total	2,254
Proposed airports	26

Airports and landing fields having any night lighting equipment:	
Municipal	233
Commercial	108
Intermediate	244
Army	26
Navy	12
State	8
Auxiliary	7
Private	8
Total	646

AIRWAYS

New Lines.—Five new Federal airways, funds for which were provided by the Public Work Administration, were in various stages of survey and construction. These are the Galveston-Waco Airway, the Tulsa-St. Louis Airway, the New Orleans-St. Louis Airway, the Fargo-Pembina Airway and the Northern Transcontinental Airway between Seattle and Minneapolis-St. Paul.

Mileage.—The table below shows fewer miles of lighted airways in operation now than in 1933. This is explained by the fact that many beacons not urgently needed were put out of operation in the interests of economy. The airway mileage is given in the following table:

	July 1, 1933	June 1, 1934
Miles lighted	18,100	17,315
Miles day (unlighted)	256	256
Miles lighted routes on day airway status (lights not operating)	644	1,499
Miles new routes under survey	.....	2,747
Intermediate landing fields	269	257
Beacon lights	1,831	1,630
Radio communication stations	68	70
Radio range beacons	99	97
Radio marker beacons	70	78
Miles teletypewriter circuits	13,000	11,841

Weather Broadcasts. — Additional weather broadcasting service for the airmen flying on the airways was inaugurated on July 15, 1934. It is now possible to obtain forecasts at any airport with communications facilities. However, it has not been feasible heretofore to broadcast them for the reason that it would require a longer interruption of the radio range beacon signals upon which airmen rely heavily during poor visibility conditions. These signals are cut off during voice broadcasts, as both are transmitted on the same frequency. Now, arrangements have been made to give the forecasts another frequency, 236 kilocycles, so that they will not interfere with radiobeacon operation.

Radio Aids.—The research work in the development of radio aids especially in blind landings has continued. Numerous landings have been made with no visibility except the guiding beam of radio. In actual operation two trucks with the directive radio equipment are driven to selected points around the landing area and assume positions along a line projected across the field in and into the wind direction. The pilot flying in by instrument from some distant point may, when within 30 or 40 miles, tune in on the inner station and fly directly to it by means of his radio loop compass. His momentary arrival over the inner station is indicated by the light flash of a visual marker instrument. He immediately tunes on the different frequencies of the outer station and flies to it by the same means. One or more interstation trips serve to establish accurately the desired into-the-wind course, which is then clocked on the directional gyro. In preparation for the final approach, the pilot lets down to approximately 800 feet as indicated by his sensitive altimeter, and heads toward the field, passing over the outer station at this altitude. Immediately on passing this station, the engines are throttled and the airplane by instrument is held in a power glide of such angle as to enable it to pass over the inner station at an indicated altitude of about 150 feet. Once the final marker light flash has been received, the pilot is through with radio loop compass and marker, and through with altimeter. Contact is made usually lightly in a ''wheel type'' landing with tail slightly below line of flight position. The pilot, on feeling the contact, closes the throttle and as the tail drops of its own accord, is able to apply brakes by reference to the directional gyro or to shorten the landing run.

TRANSOCEANIC AIR TRANSPORT

There are now under construction four gigantic fifty-passenger flying boats for use in establishing air transport service across the Pacific Ocean. These airplanes will have a range of 3,500 miles and be as seaworthy as a modern steamship. Such a service will reduce the time from New York to Shanghai from one month by train and steamship to less than a week by air. The first flight will probably be made early in 1935. This project is largely the result of the extensive pioneering work already done in long distance air transportation over water by Pan-American Airways into South and Central America.

RESEARCH

Propellers. — The Collier Trophy awarded annually to the person or persons responsible for the greatest advance in aeronautics went to the manufacturers of the controllable pitch propeller. This type of propeller is now standard equipment on practically all airplanes used in transport operations. The advent of the propeller brought increased performance in takeoff, climb and cruising speeds. The action of the controllable feature of the propeller can be compared with gear shifting in automobiles. The climb in many cases has been increased as much as 30 per cent. This means less time required to reach the usual altitude maintained for the cross country flight and a resultant decrease in both operating costs as well as the possibility of a crash at takeoff. The controllable pitch propeller has enabled operators to take off with a greater pay load than was formerly possible. Before the use of the controllable propeller a fixed pitch propeller was set at a compromise pitch which gave satisfactory take off, climb and speed. However, it was not possible to obtain the maximum of performance for the three mentioned considerations. Any improvement in takeoff for instance was obtained at the expense of top speed and *vice versa*. The controllable pitch propeller has made it possible to realize the utmost in all around performance.

An automatic variable pitch propeller made its appearance towards the end of the year. This propeller does everything that the controllable pitch propeller can do with the exception that it does it automatically. Being automatic this type of propeller selects the most efficient pitch angle under all conditions and assures the best performance for all combinations of speed and power.

Flaps.—Flaps have been standard equipment on practically all of the modern transport airplanes manufactured in 1934. Additional research has enabled designers to still further lower the landing speeds with flaps without decreasing the top speed. Thus the speed range (range between top speed and stalling speed) has been materially increased. The slower landing speeds have been a distinct gain from the viewpoint of accident prevention while landing. In addition the use of flaps permits of a steeper glide when coming down for a landing. Thus an airplane equipped with flaps requires much less space for the approach and landing run. Consequently such an airplane can, if necessary, land in very small fields without accident.

Airplane Noise. — Great progress has been made in freeing the airplane cabin from noise. This has been accomplished in several ways. Geared engines with slower turning propellers have reduced the actual noise output from propellers. The remaining propeller, exhaust and engine noises, have been kept from entering the cabin by the use of suitable cabin linings of sound absorbent materials. Thus the noise level in the cabin has been reduced to approximately 65-70 decibel, a point well below that of a Pullman train. The sleepers now in use on overnight schedules actually are less noisy than their slower competitors the Pullman cars.

Lateral Control.—The problem of lateral control goes hand in hand with the use of flaps. The flaps are located on the trailing portion of the wing and often the span of the flaps has to be limited to permit the use of conventional ailerons. Hence a good deal of research work has been done on new types of ailerons for lateral control. A narrow conventional aileron located above the split flap and working only in an upward direction has been found to be satisfactory. Another type of lateral control investigated has been the ''spoiler'' type which literally spoils the flow over the wing to be depressed. This type has also proved very effective.

Structures. — Research work with regard to structures has been largely in the direction of correlating actual flight loads, as obtained with recording accelerometers and manometers, with those used in design. In accordance with the results obtained the method of structural analysis has been changed to obtain design conditions very close to those which may occur.

Engines. — Engine research has been primarily concerned with cooling problems of the radial air cooled engine. A new type of pressure baffle which directs the air more efficiently to all parts of the cylinders has been developed and adopted. This has resulted in greater engine life and reliability due to the more uniform cooling.

XIX. ENGINEERING AND CONSTRUCTION

AMERICAN MACHINERY

By R. E. W. Harrison

Chief, Machinery and Agricultural Implements Division,
Department of Commerce

ECONOMIC POSITION

Production. — In considering the economic position of the American machinery industry there is an ever present handicap from the lack of a complete statistical picture of current production or sales, particularly in those years in which no census of manufactures is taken. Some of the principal trade organizations, however, have this year become aware of the need for such fundamental data and are beginning to take steps which should result eventually in gathering much more complete figures than have previously been available. From monthly sales of machinery as reported by a few representative trade associations there are indications that production in 1934 was some 25 or 30 per cent greater than that of 1933. This, however, cannot be taken as particularly encouraging, since the production in 1933 reached the lowest ebb in many years. On the basis of preliminary and incomplete reports of the census of manufactures the total production of machinery in 1933 was about $1,550,000,000. Some measure of the depth of depression reached in the machinery industry may be gained by comparing this with the production of over $3,300,000,000 in 1931 and more than $7,000,000,000 in 1929.

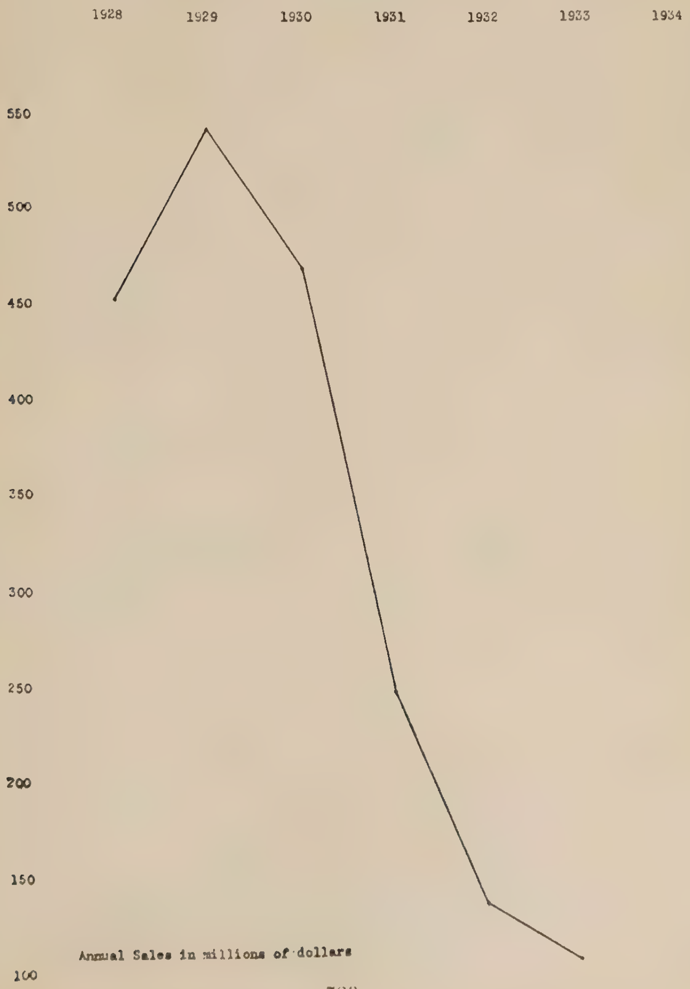
Report of Industrial Committee.— A committee of prominent industrialists representing durable goods industries was elected on March 8, 1934 at the request of the Administrator of the National Industrial Recovery Act, and in May rendered a report to the President attributing the difficulties in large measure to inactivity in the construction industry, and suggesting among other remedies that a free flow of private capital to private business was required. Private capital has remained timid about venturing into capital goods industries in general, but through several channels Federal Government credit has been made available. As yet no marked uplift in the machinery industry is discernible, though perhaps insufficient time has yet elapsed to permit the results of the availability of this capital to become apparent.

RESEARCH AND DEVELOPMENT

Financial and Market Aspects.— There has been a tendency on the part of some of the machinery manufacturers to relax their research and development activities, because of the scarcity of funds for such purposes, and of the lack of an active market for improved equipment. This attitude would, if continued, slowly but surely result in the diminution of America's lead over her foreign competitors, since our competitors abroad have not been guilty of similar laxity in improving their products. This is one of the most unfortunate aspects of the depression in the United States, since our position in world markets has largely been attained by means of the technical merit of our products, not only of our machinery, which we have sold in the past in vast quantities, but also of most of our manufactured goods, which we were able to sell in the main because of the excellence of our machine production methods.

New Developments. — Due, however, to the fact that financial resources of the manufacturers in the durable goods industries group have been reduced by approximately 50 per cent in the course of almost five years of acute depression, the more progressive concerns have realized that it is now a case of active enterprise or a long future of semi-obscure unprofitable activity. For this reason much thought has been given to new developments such as air conditioning, mechanical equipment specially designed for economical operation on small farms, low priced aviation facilities, light, fast railroad equipment, cheap prefabricated housing material, etc., the thought being that a cheapening of the first cost and an improvement in operating efficiency would probably result in a come-back similar to that which was ushered in by the widespread use of the modern automobile.

Installation Policy.—There is still in certain quarters some philosophic doubt regarding the advisability of the installation of more highly productive labor saving equipment. On the other hand, a close study of two of our leading industries which have followed widely diversified practices is usually enough to convince even the more casual student that there is considerable merit in a policy based on progressive and



MACHINERY AND ALLIED PRODUCTS INDUSTRY
(46 Subdivisions)

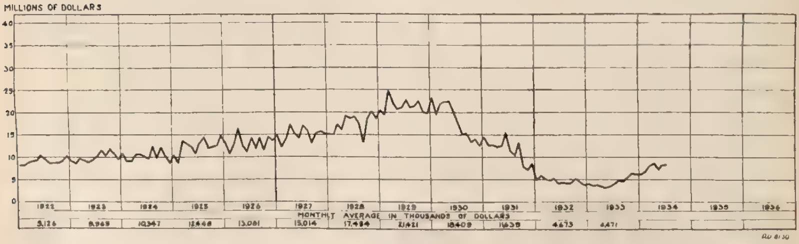
systematic installation of the most up-to-date machinery. For instance, the building industry is doing much of its work today with tools very similar to those used at the time when the Pyramids were built. In some cases this is due to the more or less inflexible restrictions imposed in the industry on the individual output per day and the use of labor saving machines. The building industry today is, according to the "Analyst" index of construction, about 76 per cent higher than the average experience in other fabricating trades based on an average of 1924 to 1929 costs of production.

Automobiles.—The automobile industry, to the contrary, has followed its invariable practice of assiduously keeping its plants thoroughly modernized and in the most efficient state of productive capacity. As new appliances have become available they have been aggressively taken up by the production departments of the automobile manufacturing concerns, and the consequence is that in this year of 1934 we have automobiles which are better in every respect than they ever have been before and available at lower prices. The result of this is to be noted in the number of modern automobiles on the streets and the fact that the industry as a whole is the brightest spot as regards employment and profit earning capacity in the whole of our industrial firmament.

Government Cooperation. — A glance through the classified subscribers section of any city telephone directory immediately emphasizes the fact that a very large proportion of the total number of people employed today are provided with their daily bread as a result of the introduction of the machine into our every day life. In fact, it is safe to say that 90 per cent of the jobs listed in these classified sections have been made possible primarily because of the high development of machine tools co-incidentally with the provision of improved mechanical equipment generally. That the Federal Government recognizes the basic importance of the durable goods industries is evidenced by the vast public works program which is now actively in operation. In all but three counties of the continental United States, PWA schemes are at work, and both directly and indirectly these schemes are providing employment in the durable goods industries. In addition to this, such schemes as the Tennessee Valley Development are aimed at the provision of abundant electric power at low rates, the thought back of this being the automatic stimulation of the use of electrical equipment with its attendant influence both on employment and improved position in the standard of living.

Production Trends. — The curve shown on the graph, on page 723, clearly indicates in a cross sectional way the production experience of the forty-six sub-divisions of the machinery and allied products industry, and while it is anticipated that the figures for 1934 will indicate a substantial up-turn, it is, nevertheless, clear that we still have a long and painful

UNITED STATES EXPORTS OF INDUSTRIAL MACHINERY
(By Months)

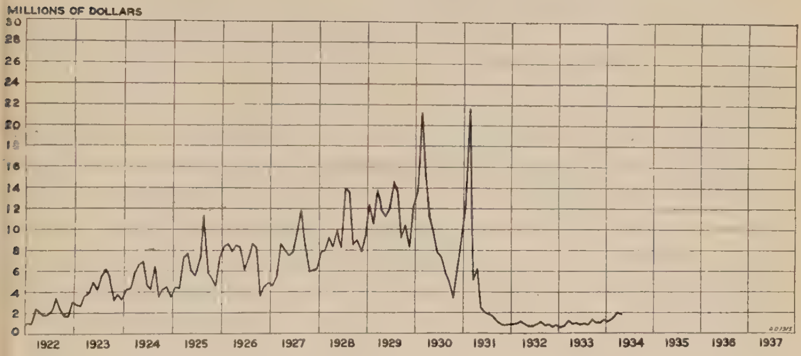


road to travel before we can reach even the comparative prosperity of 1930-31.

FOREIGN MARKETS

The export picture is a little more encouraging and reference to this curve will show that American products in foreign markets have experienced a substantial up-turn since the low period of 1932. However, there is one important branch of this industry, *i.e.*, that of agricultural machinery, in respect to which an increased effort is indicated, inasmuch as this particular branch of the machinery export industry has continued at a relatively low level since the end of 1931.

UNITED STATES EXPORTS OF AGRICULTURAL MACHINERY
(By Months)



COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

Allied Building Metals Industries, 320 Fifth Ave., New York City.

American Ceramic Society, 2525 N. High St., Columbus, O.

American Concrete Institute, 7400 Second Blvd., Detroit, Mich.

American Construction Council, 28 W. 44th St., New York City.

American Foundrymen's Assn., 222 W. Adams St., Chicago, Ill.

American Institute of Chemical Engineers, Bellevue Court Building, Philadelphia, Pa.

American Institute of Electrical Engineers, 33 W. 39th St., New York City.

American Institute of Mining and Metallurgical Engineers, 29 W. 39th St., New York City.

American Iron and Steel Institute, 350 Fifth Ave., New York City.

American Petroleum Institute, 250 Park Ave., New York City.

American Railway Engineering Assn., 431 S. Dearborn St., Chicago, Ill.

American Road Builders Assn., Press Bldg., Washington, D. C.

American Society of Civil Engineers, 33 W. 39th St., New York City.

American Society of Heating and Ventilating Engineers, 51 Madison Ave., New York City.

American Society of Mechanical Engineers, 29 W. 39th St., New York City.

American Society for Metals, 7016 Euclid Ave., Cleveland, O.

American Society of Municipal Engineers, 4359 Lindell Bld., St. Louis, Mo.

American Society of Naval Engineers, Navy Department, Washington, D. C.

American Society of Refrigerating Engineers, 37 W. 39th St., New York City.

American Society of Safety Engineers, 25 W. 39th St., New York City.

American Society for Steel Treating, 7015 Euclid Ave., Cleveland, O.

American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa.

American Standards Assn., 29 W. 39th St., New York City.

American Statistical Assn., 114 Woodward Bldg., Washington, D. C.

American Water Works Assn., 29 West 39th St., New York City.

Highway Research Board of the National Research Council, 2101 Constitution Ave., Washington, D.C.

National Aeronautic Assn., 1623 H St., N. W., Washington, D. C.

National Board of Fire Underwriters, 85 John St., New York City.

National Fire Protection Assn., Boston, Mass.

National State Assn., 644 Drexel Bldg., Philadelphia, Pa.

New York Electrical Society, 29 W. 39th St., New York City.

Society of Automotive Engineers, Inc., 29 W. 39th St., New York City.

Society of Naval Architects and Marine Engineers, 29 W. 39th St., New York City.

Society for Promotion of Engineering Education, Univ. of Pittsburgh, Pittsburgh, Pa.

DIVISION XX

GEOPHYSICAL SCIENCES

DYNAMIC AND STRUCTURAL GEOLOGY

By Kirtley F. Mather

Professor, Harvard University

RESEARCH PROGRESS

Government Factors. — Geological research in the United States has been greatly stimulated during the year as a result of two widely different factors. The extensive program of public works sponsored by the National Relief Administration has necessitated the geological examination of numerous dam sites, as in the Tennessee Valley; increased activity in the determination of the amount and location of necessary mineral resources, such as road materials, and in general the enlistment of geologists in specific governmental projects, the success of which will be in large degree determined by the wisdom of the technical experts involved. To meet this need, many of the geologists of the U. S. Geological Survey and of certain of the State Geological Surveys have been temporarily assigned to other Federal bureaus or state agencies. Although this has been of great practical value and will in the long run be very beneficial to the geological sciences, it has meant a temporary decrease in pure research and in the volume of published reports from such survey organizations.

Penrose Bequest. — On the other hand, the stimulus resulting from the receipt by the Geological Society of America of the Penrose bequest, amounting to approximately $4,000,000, has become splendidly effective during the year. Scores of research projects have been subsidized from the income from this fund. The *Bulletin* of the Society has been greatly expanded and a new series of Memoirs is now being issued. Especially valuable is the publication of an annual bibliography and index of geological literature pertaining to regions outside of North America, the first volume of which covers the year 1933 and was issued during the past summer. This bibliography, combined with the bibliography of North American geology prepared by the U. S. Geological Survey, provides for the first time an inclusive index to the current literature of geology.

STRUCTURAL GEOLOGY

Petrogeometry.—The words petrofabric and petrotectonics are rapidly finding a place in the every-day vocabulary of American geologists. During the last few years the Austrian geologists, Bruno Sander and Walter Schmidt, have developed the study of the internal space relations of rocks and have set apart as ''tectonites'' those whose deformation by means of mutual differential movements of the component particles has been recorded in their grain fabrics. Application of the principles thus discovered to the rocks of the Alps has demonstrated that a movement-picture of a folded region may be secured from systematic analysis of the fabric of its rocks.

During the spring of 1933, Eleanor Bliss Knopf published a concise discussion of the work of Sander and

Schmidt, probably the first such discussion to appear in English. Several American geologists are now enthusiastically applying the principles of petrotectonics in their field and laboratory studies. One important contribution to knowledge has already been published by James Gilluly (*Am. Journ. Science,* 5th series, vol. 28, pp. 182–201, 1934) under the title ''Mineral Orientation in some Rocks of the Shuswap Terrane as a clue to their Metamorphism.'' Dr. Gilluly concludes that ''the grain orientations shown by these rocks are analogous to those common in great Alpine overthrust sheets and are believed to be incompatible with a metamorphism under static conditions.''

This conclusion is independently corroborated by B. B. Brock, ''Metamorphism of the Shuswap Terrane of British Columbia'' (*Jour. Geol.,* vol. 42, pp. 673-700, 1934) on the basis of field studies which have led him to announce that the structure of the Shuswap gneisses shows a common quaquaversal habit due to the updoming of granite stocks. ''The yielding of the intruded rocks by rock flowage, the result of an active thrust of the subjacent magma, clearly canot be regarded as static.''

Sedimentary Rock Structures. — One of the most perplexing formations in the Grand Canyon area, so far as the internal structures of the various rock bodies are concerned, is the Coconino sandstone. In a recent publication of the Carnegie Institution (*Pub. No. 440,* paper vii, 1934), E. D. McKee presents the evidence for his conclusion that this formation is composed of sands brought by winds from the south and deposited in the main as dunes, and locally in shallow fresh waters. McKee thus challenges the view, held by other stratigraphers, that these sands were brought by rivers from the northeast.

Stylolites are familiar structures in limestone and dolomite, but not ordinarily encountered in sandstone. Paul H. Price, however, describes stylolitic structures from a considerable number of siliceous rocks of various geologic age (''Stylolites in Sandstone,'' *Jour. Geol.,* vol. 42, pp. 188-192, 1934) His examples from the Pottsville sandstone suggest that differential solution alone can account for their origin.

Low-angle Faulting.—The mechanics of low-angle overthrust faulting have long been a problem of great difficulty. In a current issue of the *Bulletin* of the American Association of Petroleum Geologists, (vol. 18, pp. 1584-1596, 1934). John L. Rich presents the results of an unusually complete and penetrating analysis of the Cumberland Thrust Block which occupies parts of the states of Virginia, Kentucky and Tennessee. He concludes that the structure relations of that fault block are such as would occur if gliding on the thrust plane took place parallel with the bedding along certain shale beds in such a way that the thrust plane followed a lower shale bed for some distance, then sheared diagonally up across the intervening beds to a higher shale, followed that for several miles, and again sheared across the bedding to the surface. His study throws new light on the broad problems of folding and faulting in sedimentary rocks bordering great mountain ranges.

DYNAMIC GEOLOGY

Landslides.—During the winter of 1933-34 there were frequent reports that a Colorado mountain was ''Moving.'' The somewhat sensational accounts in the public press led John W. Vanderwilt to investigate the situation. He reports that a comparatively small rockslide has been descending the slopes of Carbon Mountain, near Durango (*Jour. Geol.,* vol. 42, pp. 163-173, 1934). Instead of finding a mountain in motion, he suggests the analogy to a few shingles sliding from the roof of a building. The phenomenon is, however, of considerable geologic interest because it is subject to frequent observation. A mass 1,800 feet long, 600 feet wide and 100 feet deep has moved about 700 feet obliquely down the back slope of a hogback over a 40 per cent grade. The maximum known rate of motion was about 30 to 45 feet per day.

Glaciation. — Dr. Frank Leverett has spent several field seasons of late in an investigation of the glacial deposits outside the Wisconsin terminal moraine in Pennsylvania, and the results of his work are incorporated in a recently published bulletin of the Topographic and Geologic Survey of that state. Deposits of Jerseyan and of Illinoian age are described in detail as occurring at numerous localities in the Susquehanna and Delaware valleys and in northwestern Pennsylvania.

Pediments. — As a byproduct of their geological research in the Magdalena mining district, New Mexico, A. H. Koschmann and G. F. Loughlin present a significant study of the dissected pediments of that region (*Bull. Geol. Soc. America*, vol. 45, pp. 463-478, 1934). They conclude that the development of the different stages of erosion, marked by rock benches and alluvium, is related to the varying rates at which certain streams cut their channels downward through the volcanic and sedimentary rocks.

PUBLICATIONS

Walter H. Bucher, *The Deformation of the Earth's Crust*, Princeton Univ. Press, Dec., 1933; 518 pages.

Alfred Harker, *Metamorphism*, E. P. Dutton, April, 1934.

Vaughan Cornish, *Ocean Waves and Kindred Geophysical Phenomena*, MacMillan, June, 1934, 164 pages.

R. A. Daly, *The Changing World of the Ice Age*, Yale Univ. Press, Dec., 1934; 271 pages.

EARTHQUAKES AND VOLCANOES

By L. Don Leet

Seismologist in Charge, Harvard Seismograph Station

EARTHQUAKES

General.—Several moderately severe earthquakes which caused slight damage but no loss of life marked the interval covered by this report, within the possessions or continental limits of the United States. Throughout the world there were 62 major earthquakes whose locations are definitely known, and the usual thousands of minor shocks. Greatest loss of life accompanied a quake in India on Jan. 15, when 9,000 were reported killed.

Northeast Region. — Shocks were reported felt Oct. 29, 1933 at St. Johnsville, N. Y.; 1934 Apr. 14, at Burlington, Rutland, and Montpelier, Vt.; Aug. 2, along the Maine coast.

Central and W. Mountain Regions. —Dec. 9, 1933, Blytheville, Ark.; Jan. 7, 1934, Socoro, N. M.; Jan. 30, Mina, Nevada, where some damage was reported; Mar. 12 to 15, Apr. 6 and 14, May 6, a series of shocks, some severe enough to cause structural damage, in the vicinity of Logan and Salt Lake City, Utah; May 7, Socoro, N. M.; July 30, Chadron, Neb., and vicinity; Aug. 19, Charleston, Mo.; Aug. 20, the Reelfoot Lake district which was the scene of one of the country's most violent earthquakes within historical time (1811) in the vicinity of New Madrid, Mo.

Pacific Coast.—As stated in previous reports, there is not space in a brief summary of this type for the inclusion of all small earthquakes known to have occurred in such regions as the Pacific Coast. Complete lists of local shocks, whether felt or recorded only by instruments, together with their locations where determined, are prepared monthly by the Seismological Laboratory of the Carnegie Institution of Washington at Pasadena, Cal. These lists ordinarily include from fifty to a hundred and more quakes per month. Stronger shocks felt over fairly wide areas were reported as follows: 1933, Nov. 14, Long Beach, Cal.; Nov. 20, Los Angeles, Cal.; Nov. 23, Portland, Ore.; Dec. 13, San Jose, Cal.; 1934, Jan. 5, 9, 20, Los Angeles, Cal.; Jan. 20, Long Beach, Cal.; Feb. 6, Seattle, Wash.; Feb. 9, Modesta, Cal.; Feb. 14, 15, Santa Rosa, Cal.; Mar. 10, Chelan, Wash.; Apr. 17, Santa Ann, Cal.; Apr. 20, Huntington Park, Cal.;

Apr. 28, San Jose, Cal.; May 4, Seattle and vicinity; May 6, Los Angeles; May 9, Long Beach, Cal.; June 5, Santa Cruz, Cal.; June 7, Hunford, Cal.; June 20, San Francisco; July 17-20, a succession of severe shocks in the interior of Panama, causing damage at David City and Puerto Armuelles. The Chief of Survey, Panama Canal, reported 77 tremors from p. m. of the 17th to a. m. of the 30th.

Alaska and Philippine Islands.—Jan. 15, 1934, Anchorage; Feb. 14, Manila, P. I. Center 200 mi. NW of Manila. Followed by small tidal wave; Mar. 30, Anchorage; May 4, Anchorage and Cordova; May 15, June 18, and Aug. 2, Seward.

VOLCANOES

Nov. 30, 1933, Sitkin Volcano, Kanaga Island, reported erupting. Dec. 2-18, Mauna Loa, Hawaii, in eruption. Measurements of tilts of the ground at neighboring Kilauea showed that prior to the Mauna Loa eruption, tilt had been inward toward the pit of Kilauea. The week of the outbreak, it was strongly outward as though the Kilauea floor swelled upward; after the outbreak at Mauna Loa, the tilt was strongly inward as though the sinking of the Kilauea floor followed the sinking back of the lava under Mauna Loa. This sequence had also been observed at Kilauea when the live lava of Halemaumau was visible during the Mauna Loa eruptions of 1914, 1916, and 1919.

RESEARCH

Strong-motion seismograph records were obtained by the U. S. Coast and Geodetic Survey during the year as follows: Jan. 20, at Bishop and San Jose, Cal.; June 6, at Santa Barbara, Hollywood, and Pasadena, Cal.; and July 7 at Eureka and Ferndale, Cal. Such records, the first of which were obtained in the Long Beach earthquake of March 10, 1933, are expected to yield data of value to engineers in designing earthquake-proof structures.

Investigations of the effect of earthquakes on dam water pressures, reported from Stanford University, and a discussion of the use of models in determining earthquake stresses in elastic structures, describing research at Massachusetts Institute of Technology, were published in the *Bulletin of the Seismological Society of America*, (Vol. 24, Nos. 1 and 3 respectively).

ECONOMIC GEOLOGY

By D. F. Hewett

United States Geological Survey

GENERAL

In contrast with 1933 when the Lindgren volume on ore deposits appeared, the year 1934 has not brought forth a comprehensive summary in the field of economic geology. The financial problems of the states, as well as the Federal Government, continued to exert influences on the current trend of investigations. Although both State and Federal organizations were handicapped by smaller appropriations from regular channels, both groups of organizations were called upon to do many varieties of work supported by emergency appropriations, especially from Public Works Administration and Civil Works Administration. The record of this work is beginning to appear in print.

GOVERNMENTAL SURVEYS

A symposium held in February by a committee of the American Institute of Mining and Metallurgical Engineers has yielded a pamphlet on the "Relations between Government (State and Federal) Surveys and the Mining Industry." It sets forth a friendly appraisal of the achievements as well as deficiencies of these organizations during recent decades and indicates the needs and problems of the near future. Such a symposium reveals the changing character of mineral problems during the life of a nation. During youth when there was a vast frontier to be explored, governmental surveys aimed to determine the resources which would guide development by private industry. This stage was followed by another where large industrial units created competent staffs of plan exploitation and the field of governmental surveys was restricted. The future of governmental surveys is now being appraised by the leaders in industry as well as in Government.

MINERAL ZONES AND STRUCTURAL RELATIONS

Many competent geologists have come to believe recently that the best metal mining districts in the United States have been found and are turning their attention to the problems of their broader relations and the outlook for production in depth. Locke, Billingsley and Schmitt (*Economic Geology,* 29; 560-576, 1934), well fortified by wide experience, review the local occurrences of ore in many districts in the light of the concepts of the channels of ore solutions (structural relations) and mineral zones. The concept of mineral zones is not new but that of succeeding structural relations of ore bodies with depth is new and attractive and full of possibility for economic application.

The most comprehensive study of a metalliferous district issued during the year is that of Breckinridge, Col., by Lovering. In so far as they concern the effect of supergene enrichment and downward persistence of the metals, the conclusions of a study made 20 years earlier are confirmed, but the complex rock pattern of the district is interpreted as caused by complicated faulting rather than by irregularities of the intrusion process.

Even though it is one of the oldest metalliferous districts in the country, the Tri-state zinc and lead field still offers debatable basic problems. Local consulting-geologists as well as a group in nearby universities who are inspired by a committee of the National Research Council are reviewing many aspects of the problem and collecting new data. Several lines of evidence, notably the widespread alteration of limestone to chert and its relations, indicate that the solutions which deposited the ores arose from depth. This contrasts with the recently prevailing belief that the metals and related silica were derived from surface waters.

STUDIES OF COAL

Several interesting studies of coal appeared during the year. J. V. Lewis (*Economic Geology,* 29; 1-38, 157-202, 1934) critically reviewed the chemical and physical properties of the several varieties of coal with the view to determining the nature of the progressive changes in composition and constitution as well as in volume. T. Stadnichenko (*Economic Geology,* 29; 511-544, 1934) carefully selected samples of coal from the Lower Kittanning bed exposed in eight mines that lie along a belt across the Appalachian field of western Pennsylvania. It is concluded that, throughout the extent of the belt, the bed is made up of similar original plant material and that the progressive carbonization is best explained by the thrust pressure theory.

OIL AND GAS

The papers offered to the American Association of Petroleum Geologists still record the features of individual oil fields but to an increasing degree are devoted to problems of recovery of petroleum in so far as they are related to stratigraphy, structure, permeability and water. As the largest association of geologists who deal with gas and petroleum, it now attracts papers concerning oil and gas fields throughout the world; during 1934, papers concerning Russia, Germany, Roumania, Japan, and the Congo appeared. The state surveys issued fewer papers than heretofore. A comprehensive review of the occurrence of oil and gas in Michigan appeared and the Texas organization brought out a summary of the geology of the State.

ECONOMIC GEOGRAPHY

By Helen M. Strong

U. S. Coast and Geodetic Survey

REGIONAL STUDIES

Field investigations at home and abroad have formed the basis of essentially every important study published by American geographers during 1934, with the exception of those on population, for which Census statistics provided the foundation. All were, in effect, regional studies, revealing the elements of the physical structure as woven into the economic pattern of the area.

Every region possesses climate, soil, topography, and other components in its physical environment, but their character, intensity, and balance in relation to each other and the composite of nature are unlike from place to place. Consequently this appraisal of the physical surroundings becomes a task of signal value in considering present and potential industrial, agricultural, commercial, and other development.

Grants from research foundations and universities, and private funds have made possible these analyses of regions distributed over the world from the Orient to the Occident, and ranging from the Atlantic to the Pacific in the United States. Space permits mention of only a few of these studies.

ASIA

China.—Asia has attracted the attention of several American geographers. After several years of residence and field study in China, Dr. George B. Cressey of Syracuse University has given us *China's Geographic Foundations,* which presents a regional geographic analysis of the interrelation of nature and man in this broad land.

Japan.—Various aspects of Japanese geography are also presented. Dr. Glenn T. Trewartha of the University of Wisconsin has given special attention to the physiography of the Japanese Empire as a basis for the morphology and distribution of human activities there. Dr. Robert Burnett Hall of the University of Michigan has afforded us a study of urban forms in Japan. From Dr. Darrell Haug Davis of the University of Minnesota has come a presentation of the physical structure and human occupation of the Hokkaido, that northern island of Japan, which, New England in climate, contrasts so markedly with Tokyo-Yokohama-Inland-Sea Japan.

SOUTH AND CENTRAL AMERICA

For South America, Dr. Preston E. James presented the results of work in the rice district of the middle Parahyba valley of Brazil, while Dr. Robert S. Platt of the University of Chicago laid the ground work for future more detailed interpretation by affording a broad view of patterns of occupance in the Maracaibo Basin and in Chile. From Dr. Platt also came a geographic interpretation of an air traverse of Central America.

UNITED STATES

Work relating to the United States has contributed much of practical value. That of Dr. Ralph H. Brown of the University of Minnesota on irrigation in the dry-farming region of the Greenfields area of Montana is pertinent to other similar localities not far removed from pioneer conditions, and not yet greatly changed by irrigation. Dr. Edward C. Prophet has portrayed the *Recreational Industry in Michigan* in a series of type studies representing several kinds of communities in which recreation has become a major industry.

AMERICAN FOREST PROBLEMS

One of the outstanding problems in the United States is that relating to our forests. Their area gradually has been diminished, and the quantity of marketable timber depleted. The *Report of the Forest Service of the Agricultural Department of the For-*

est Problem of the United States, known as the *Copeland Report* is, according to Henry S. Graves of Yale University, "a compendium of the existing knowledge regarding the forest problems of the country, an analysis of the economic factors bearing on these problems, and an interpretation of their significance in the life of the nation."

THE PHILOSOPHY OF ECONOMIC GEOGRAPHY

Four studies in what might be termed the philosophy of economic geography, call for comment. They were the outgrowth of many different field studies conducted by the authors. Dr. Derwent Whittlesey of Harvard University in revealing the manner in which "central authority places its stamp upon the landscape no less than (does) agriculture or transportation," has contributed a new thought for economic geographers. The other three of these four studies formed a group of papers on the theme "Conventionalizing Geographic Investigation and Presentation", presented at the Evanston (Ill.) meeting of the Association of American Geographers. Preston E. James of the University of Michigan discussed "The Terminology of Regional Descriptions", Wellington D. Jones of the University of Chicago developed "Procedures in Regional Investigation", while "Written Structures for Presenting the Geography of Regions" was considered by V. C. Finch of the University of Wisconsin. They dealt with subjects such as scale in regional presentation, comparison of distribution patterns in a given area, factual items to be considered in regional investigation, and the written structure adapted to sparsely peopled, pioneer, well-inhabited and long-settled regions.

SURVEYING AND MAPPING

During the past winter the Coast and Geodetic Survey, under a Civil Works appropriation, put 10,000 unemployed engineers to work on a project, the economic and geographic importance of which would be difficult to measure, for it dealt with the most fundamental of all geographic tasks confronting the nation today, that of surveying and mapping the United States. With 50 per cent of the country entirely unmapped, and 24 per cent covered by surveys totally inadequate for present day needs, geographic studies, economic plans, engineering works lack a sound foundation on which to build. Control surveys, consisting of triangulation or traverse to determine the geographic positions of permanently marked points on the earth's surface and the directions and distances between them, and leveling to determine the elevations of these points with reference to a standard datum, are essential to mapping and engineering construction. They establish locations and distances, elevations and relative directions. Last winter's Civil Works project produced 18,000 miles of traverse and 20,000 miles of leveling, including the setting of 20,300 permanently marked points whose geographic positions and/or elevations are accurately recorded and will be made available for future public use. It should be noted that geographers are in the employ of the Natural Resources Board, the Mississippi Drainage Board, the Tennessee Valley Authority and the Petroleum Board.

MINERALOGY AND PETROGRAPHY

By Clifford Frondel

Member, Mineralogical Society of America

MINERALOGY

Zeolites.—The series of studies on the zeolites carried on by Hey, with the collaboration, in part, of Bannister, has been extended to the rare barium zeolite, edingtonite, and to mesolite with a consideration of their composition, optics and crystal structure (*Min. Mag.*, 1934, 23; 421-447, 484-494). Base exchange experiments with silver, thallium and alkali salts and vapor pressure data are included. These authors have shown also, by *x*-ray study of single crystals, that the zeolite clinoptilolite, recently given species rank, is instead to be classed as a high silica variety of heulandite (*ibid.*, 556-559).

Adsorption at crystal-solution interfaces has been largely investigated by workers in colloid chemistry but several contributions of mineralogical data to this field have appeared during the year. The segmental coloration produced in certain artificial crystals by the adsorption of a pigment by a particular crystal form during growth (Gaubert, 1911; France, 1930) has been described similarly to result in natural species, notably in amethyst quartz and not uncommonly in fluorite, smoky quartz, augite and other minerals (Frondel, *Am. Mus.*, Nov., 1934, 704; 1-16). In related occurrences the adsorbate has crystallized selectively upon the forms of the adsorbing crystal; the overgrowth in many instances also being crystallographically oriented to the supporting crystal (*Am. Min.*, 1934, 19; 316-329).

Edge Adsorption of importance in the field of contact catalysis, has been illustrated by the description of mineral super-crystallizations that are localized to the edges or corners of the adsorbing crystals (*Am. Mus.* Nov., 1934, 705; 1-22).

Directory of Mineral Collections.—A list of the public and private mineral collections in the United States and Canada has been compiled by Gordon (*Am. Min.*, 1933, 18; 313, 359, 407, 457, 504). The directory is arranged by states and in each state under towns. In many cases a brief description of the contents is given. Over 700 collections are mentioned.

CRYSTALLOGRAPHY

Crystallographic study by Palache of the lead oxychlorides laurionite, paralaurionite and fiedlerite has established the separate identity of the first two and their homomorphism (*Min. Mag.*, 1934, 23; 573-586). Nieuwenkamp has recently shown by chemical and *x*-ray study of natural and artificial material that matlockite is a lead fluochloride and not an oxychloride; crystal structure and optical data for this species has since been given by Bannister (*ibid.*, 587-597).

Crystallometry.—Buerger has given a direct and self-contained demonstration of the self-indexing property characteristic of the gnomonic projection (*Am. Min.*, 1934, 19; 360-369). The transformation of indices from one plane of projection to another is discussed. The last publication of the late V. Goldschmidt is his *Kursus der Kristallometrie* (Berlin, pp. 167, 183 figs.), a clear and concise account of his two-circle method including the plotting of data on the gnomonic projection and the drawing and calculation of crystals from this. A suggested form for the presentation of crystallographic data in the Goldschmidt method for use in the forthcoming edition of Dana's *System of Mineralogy* has been described by Peacock (*Am. J. Sci.*, 1934, 38; 241-249).

Crystal Optics. — An elementary non-mathematical treatment of the ray-surface and the optical indicatrix has been presented by Tunell (*J. Wash. Acad. Sci.*, 23; 325-338). Goranson and Wright have described a method, adapted from G. Friedel (1893), for measuring the optical path difference of a birefringent plate (*J. Frankel. Inst.*, 216; 475-504). The use of the Ferorov universal stage in determining the optic angle has been described by Dodge (*Am. Min.*, 1934, 19; 62-75).

Index Liquids. — Recent research directed towards the development of high index resins as mounting media in petrographic work has been described by several authors (*Am. Min.*, 1934, 19; 375, 384, 385). Immersion liquids of intermediate refraction for index determinations have been fully discussed by Butler (*Am. Min.*, 18; 386-401) and new liquids of high refraction by other authors (*Nature*, 1934, 66-67; *Gemmologist*, 1934, 3; 216, 222). The use of standard glass powders in refractive index and dispersion determinations has been described by Sueno *(Am. Min.,* 18; 421-430).

NEW MINERALS

Ammonioborite, a new mineral, is a hydrous borate of ammonium from Lardarello, Italy, where it occurs as irregular masses embedded in sassolite. In composition it is identical or very similar to lardarellite, the exact formulas of both minerals being uncertain, but the optical properties differ and a different crystal structure is shown by x-ray spectra. The two minerals are indicated to be dimorphous.

Colusite.—A new sulphide with copper, iron, tin and molybdenum in isomorphous replacement from Butte, Mont., where it occurs as a primary mineral in copper veins. X-ray examination shows that colusite is isometric with an atomic arrangement essentially the same as in sphalerite.

Ferruccite is sodium fluoborate and has been recognized as minute orthorhombic fibers in mixed fumarloic sublimations on Vesuvius. A new hydrous calcium borate has been found as compact white masses of minute monoclinic crystals in the borate deposits of Tuscany, named *Ginarite.*

Hydrocalumite. — A monoclinic (pseudo-hexagonal) hydrated calcium aluminate from the chalk and dolerite contact zone at Scawt Hill where it is found in vugs in larnite-rock.

Janite is described as a complex silicate related to chloropal or celadonite. It occurs as soft dark-red spherules in altered basalt from the Janowa Valley in Volhynia, Poland.

Jarlite.—A monoclinic fluoride of sodium, strontium and aluminum found with thomsenolite in the great crolite deposits at Ivigtut, West Greenland. An associated substance nearly identical in composition but with different optical properties is termed *Metajarlite.*

Johannsenite has been recognized as a monoclinic pyroxene isomorphous with diopside and dimorphous with bustamite. The name is after Prof. Albert Johannsen of Chicago.

Lusakite is a new orthorhombic alumino-silicate distinguished by the presence of 8 per cent cobalt, an element not previously observed in minerals of this general type. Optical and x-ray data and its chemical constitution bring out a close relation to staurolite.

Minyulite.—A new mineral found as radiating groups of white orthorhombic fibers at Minyuli Wells, West Australia. In composition it is a hydrous basic phosphate of aluminum and potassium.

Paracoquimbite.—Crystallographic study of the mixed hydrous sulphates of the Tierra Amarilla, Chile, has identified paracoquimbite as a rhombohedral dimorphous modification of coquimbite. Other new minerals from this occurence are *Leucoglaucite,* a pale blue hexagonal hydrous ferric sulphate, *Amarillite,* a hydrous sulphate of ferric iron and soda analogous to tamarugite, and *Lapparentite,* a hydrous basic sulphate of aluminum in monoclinic crystals.

Saleite.—A yellow hydrous phosphate of uranium and magnesium in the form of platy orthorhombic crystals from Katanga, Belgian Congo. A new secondary uranium mineral named *Uranolepidite,* also from this locality, is probably identical with the recently described species vandenbrandite. Other new species from this locality are *Thoreaulite,* a tin tantalate found as monoclinic (?) crystals in pegmatite, and *Cuprosklowdowskite,* a copper analogue of sklowdowskite found as yellow orthorhombic needles.

Tilleyite.—A new monoclinic lime silicate-carbonate mineral from the contract zone at Crestmore, Calif., where it occurs with grossularite and merwinite. Tilleyite is allied to scawtite and spurrite.

NEW BOOKS

The classical outline, *X-rays and Crystal Structure,* by W. H. and W. L. Bragg has been superseded by a new volume, *The Crystalline State* (London, 1, pp. 352, 187 figs.). The present volume is a general survey of the field; additional specialized volumes are intended. *Thin Section Mineralogy,* by Rogers and Kerr

(New York, pp. 311, 261 figs.) is an excellent elementary textbook on the optical characters and determination of the rock-forming minerals. New editions of standard reference works include a second edition of *The Microscopical Determination of the Non-opaque Minerals (U. S. G. S. Bull.* 848, pp. 266, 7 figs.), by Larsen and Berman, with extensive additions of data for 250 new or not previously included mineral species, and a third edition of Part II of *Winchell's Optical Mineralogy* (New York, pp. 459, 361 figs.).

PETROGRAPHY

Antarctica. — Preliminary papers on the petrography of rock suites collected during the Byrd Antarctic Expedition of 1928-30 and by various earlier expeditions have been published by Stewart *(Am. Min.,* 1934, 19; 150-160, 350-359). A petrographic description is given of specimens from the Beacon Formation, a great series of arkoses, sandstones, shales, and beds of low-grade coal of the upper Devonian to the Triassic (?) age that extends over a vast area of the Antarctic Continent. The derivation of the mineral constitutents with respect to the original sources (probably pre-Cambrian acid metamorphic rocks that may have been intruded by acid igneous types) is discussed. An earlier paper describes various igneous rock types.

Plagioclase.—The nature of the plagioclase in igneous rock types is of fundamental significance to the classification of such rocks and the optical determination of the feldspars in thin section is a matter of first importance to the petrographer. Of value in this respect is the translation by Kennedy of Chudoba's work, *The Determination of the Feldspars in Thin Section* (New York, pp. 62, 50 figs.), the German edition of which appeared in 1932. Nikitin has carefully revised the stereographs of the optical data previously published by him for the determination of the feldspars by the Fedorov method (*Tschm. Mitth.,* 44; 117-167).

The application of the modified Fedorov universal stage to determinative procedures for plagioclase feldspars and their twin laws has been described by Emmons *(Am. Min.,* 1934, 19; 237-259). Numerous diagrams to facilitate calculation by graphical methods are included.

The zoning of the plagioclases is normally from calcic to alkalic (outer) but the reverse order and oscillatory zoning is sometimes met with. Such anomalous zoning in Scottish olivine basalts has been described by Phemister *(Min. Mag.,* 1934, 23; 541-555) who discusses the origin of the feature in point of the lack of balance between the growth rate of the crystals and diffusion from the crystallizing magma.

TERRESTRIAL MAGNETISM AND ELECTRICITY

By John A. Fleming

Carnegie Institution of Washington

GENERAL

The work of the year 1934 may be grouped under four general heads: (1) Maintenance of field observations to preserve continuity of secular-variation material and of records at observatories for seasonal, diurnal, and irregular fluctuations of the Earth's magnetic and electric fields; (2) instrumental improvements including development of methods and technique to obtain continuous records of the electrical conditions and their variations in the ionosphere, and their geomagnetic and geoelectric effects; (3) continued attack in the laboratory on basic phenomena of magnetism through experimental work in nuclear physics and in the field and laboratory on cosmic radiation; (4) reduction and study of the observational material already gathered.

OBSERVATORIES

The five magnetic observatories of the United States Coast and Geodetic Survey at Cheltenham (Maryland), San Juan (Puerto Rico), Tucson (Arizona), Sitka (Alaska), and Honolulu (Hawaii) were operated without serious interruption. At Cheltenham the Survey, in cooperation with the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, made suitable and improved provision for intercomparison of international standards through the installation there of the C.I.W. sine-galvanometer. Arrangements were made at the Cheltenham, Tucson, and Sitka observatories for the installation of insensitive variometers so that complete photographic records might be secured during periods of severe magnetic disturbance. Cooperation of the Carnegie Institution of Washington, the American Telephone and Telegraph Company, and the Mountain States Telephone and Telegraph Company made possible continued recording of the variations of earth-currents and of conductivity and potential gradient of atmospheric electricity at Tucson.

The observatories of the Carnegie Institution of Washington at Huancayo (Peru) and at Watheroo (Western Australia) maintained continuous recording of terrestrial-magnetic, atmospheric-electric, earth-current, and meteorological phenomena. The Institution cooperated also in maintaining the Apia Observatory (Samoa), and grants were obtained from the Rockefeller Foundation and the Carnegie Corporation to maintain during 1934 and 1935 without serious interruption the programs at the Apia and Christchurch (New Zealand) observatories. The magnetic observatory of the Byrd Antarctic Expedition II at Little America, Antarctica, was in operation from Feb. 12, 1934, thus insuring practically a 12-month series from that station before return of the Expedition in 1935.

The following were also maintained by North and South American governments during 1934: Agincourt and Meanook by Canada; Teoloyucan by Mexico; Pilar, La Quiaca, and Orcades (South Georgia) by Argentina; Vassouras by Brazil. Arrangements were made to establish near Buenos Aires a geophysical observatory to study atmospheric and telluric electricity, ionization, and radioactivity of the atmosphere; this observatory is to be a complete center of helio-geophysical observation along the lines of its prototype, the Ebro Observatory in Spain.

MAGNETIC SURVEYS

The Coast and Geodetic Survey has nearly completed the occupation of repeat-stations all over the United States to develop the secular change of the Earth's magnetism during the past five years and to prepare for the issue of magnetic charts for 1935. New stations were established at many places for the use of local surveyors. In cooperation with state organizations working under the Civil Works Administration, observations of magnetic declination were made at many old stations in New Jersey and reports were made on the present condition of stations in other states. In connection with the coastal surveys of the Survey, declination observations were made in California, Alaska, and the Philippine Islands. The Survey also determined magnetic declinations at compass-testing stations of airports, supplying data for marking lines on circular concrete platforms so that planes may be placed accurately in any desired direction, these lines being usually started with magnetic north and being spaced for each 30° thereafter. The magnetic bearings of river ranges and sufficient observations of declination to reveal any local disturbance are being determined by the Survey for possible use of the mariner in obtaining compass-deviations.

The United States Bureau of Mines made a resistivity-survey at the Grand Coulee dam site on the Columbia River to determine the subsurface topography of the bed-rock. The results have since been corroborated by diamond drilling. The Bureau also made magnetometer-surveys upon some iron-ore deposits in Puerto Rico to indicate their extent and outline.

The Carnegie Institution completed

its expedition in the southern and eastern parts of South America. Through its cooperation, magnetic observations were made near Little America and on the polar plateau above Thorne Glacier in Antarctica by the Byrd Antarctic Expedition II. The Institution also cooperated with organizations in South Africa, British East Africa, and China to obtain repeat-observations at a number of stations. The Magnetic Section of the National Astronomical Observatory of Mexico reoccupied many stations in Mexico. The Hydrographic Office of the United States Navy added to magnetic secular-variation data through observations in Central America and the Aleutian Islands.

RESEARCH IN IONOSPHERE AND INSTRUMENTS

Perhaps the most significant immediate advance is in the latest development for research in the ionosphere. This technique is now at the stage where continuous photographic records may be secured, manual observations meanwhile having shown fundamental results. This method appears also a sure means to obtain definite information not only of the conditions of the, as yet, otherwise inaccessible regions above the Earth's surface but of cosmical phenomena and of their relations to terrestrial ones. An understanding of the mechanism connecting the ionosphere and the external portion of the Earth's surface must improve knowledge of the relation of cosmic radiations in the ionosphere to their images represented by magnetic and electric phenomena at the Earth's surface and below the Earth's surface.

A considerable contribution to knowledge of the structure of the upper atmosphere in equatorial regions was made through the work of the Huancayo Observatory. These experiments show there are three sharply defined increases of ionizations of layers ordinarily apparent in the daytime with near-normal incidence of the Sun's rays, with virtual heights of about 100, 180, and 300 kilometers; these correspond with data obtained in the temperate zones, indicating their world-wide character, and yield values for the numbers of electrons per unit-volume in each of these three layers. The Earth's magnetic field causes the exploring radio wave to be split into two components. These are returned from the same height at different frequencies and these observed frequencies at Huancayo agree with values predicted from theoretical considerations published in 1927. Because of the small magnetic field at Huancayo, this agreement shows that the numbers of ions in the intermediate layer cannot exceed 10^7 per cc, a value a hundredfold lower than the limit previously set. The results further show that the intermediate (daytime) layer is formed by a gradual separation of the upper region into two parts rather than by distinctly new ionization and that the upper layer is a region of rich ionization of considerable vertical extent. These facts have a direct bearing on theories of diurnal variation of terrestrial magnetism and further demonstrate the value in terrestrial-magnetic research of investigations of the upper atmosphere by radio methods.

The Carnegie Institution of Washington further developed instruments for this work, especially the modification of existing equipment for automatic single- and multi-frequency continuous registration; both the Huancayo and Watheroo observatories are being provided with these equipments. The National Bureau of Standards at Washington continued its photographic observations of the ionosphere, adding greatly to the accumulation of invaluable data bearing on fluctuations of the ionized regions in the temperate zone. The Bureau and the Department of Terrestrial Magnetism have cooperated with various other organizations in the development of this work and especially with that at College, Alaska, by the Alaska Agricultural College and School of Mines.

MAGNETIC INSTRUMENTS

The Carnegie Institution of Washington and the Coast and Geodetic Survey undertook a joint attack on the problems of more rapid and convenient absolute magnetic observations and of more consistent performance of observatory recording apparatus. This program includes exhaustive tests of existing instruments and development of new ones including particularly electrical methods of recording with the special aim of a combination of accuracy, rapidity, and convenience which had not yet been attained by other methods.

NUCLEAR PHYSICS

The program of the Carnegie Institution of Washington on basic phenomena of magnetism was continued and expanded. The two-meter electrostatic generator, installed in a specially built laboratory at Washington, gives positive potentials of 1,200 kilovolts. Experiments with pure gases showed that heavy hydrogen itself occluded on the solid targets was a contamination responsible for many of the disintegration-effects observed using deutons. Neutron-intensities with this equipment were obtained in excess of any neutron-intensities possible with radio-active sources. Through magnetic analysis of the constant-voltage ion-beam, evidence for the existence of stable hydrogen atoms of mass three was found. Quantitative confirmation of this new isotope was shortly afterwards reported by investigators at Princeton University, using an entirely different method.

COSMIC RADIATION

The special committee of the Carnegie Institution of Washington to coordinate further support for research in cosmic rays was continued. Good progress was made in the construction of the cosmic-ray recording meters of high precision, of which five or six are to be installed at selected stations well distributed in latitude and longitude to obtain continuous and simultaneous data over long periods for careful analyses from the statistical viewpoint to investigate variations in cosmic radiation. Arrangements were completed to install the first meter at the Cheltenham Magnetic Observatory during January, 1935; other meters are to be installed in 1935 at Wellington (New Zealand), Godhavn (Greenland), Huancayo (Peru), and near Mexico City (Mexico).

Dr. A. H. Compton of the University of Chicago confirmed the existence of electrically charged particles as an important component of the rays. The uniformity of the intensity of the rays all over the earth, except for the effect of the Earth's magnetic field, points toward the isotropic origin of the rays, thus implying a very remote origin. Prof. R. D. Bennett of the Massachusetts Institute of Technology, using one of the precision cosmic-ray meters at altitudes from 5,000 to 14,120 feet in Colorado, confirmed the relatively greater importance at high altitudes than at low altitudes of the large cosmic-ray bursts and obtained information on the intensity of the rays and their daily variations in intensity. Dr. T. H. Johnson, using improved automatically recording instruments and observing at a number of high-altitude stations in the United States and Mexico, concluded from these results and those of 1933 that (1) there is an east-west asymmetry of the radiation, (2) quantitatively all the primary charged rays appear to be positive, (3) variations of asymmetry with elevation show the charged rays are probably to be identified with the soft component which constitutes the greater part of the radiation incident at the top of the atmosphere, (4) there is a slight north-south asymmetry in intermediate latitudes, and (5) the phenomenon of cosmic-ray bursts or showers increases more rapidly with elevation than the total intensity of cosmic rays and apparently the bursts are events characteristic of the collision of a positive primary with an atomic nucleus.

Dr. R. A. Millikan and his associates of the California Institute of Technology continued, at the laboratory and in the field, their researches on fundamental processes in the absorption of cosmic-ray electrons and protons, on a very high altitude survey of the effect of latitude on cosmic-ray intensities, and on a general interpretation of cosmic-ray phenomena. In the laboratory a cloud-chamber-magnetic-field apparatus was used to obtain data on the energy-distribution of cosmic-ray electrons, on the rate at which they lose energy in passing through matter, on the way in which the energy-loss is divided among various kinds of processes, and on the processes involved in photon-absorption. In the field the very high altitude geographical survey now extends from northern Canada to Peru; it was carried out in airplanes at altitudes up to 22,000 feet and in three stratosphere-flights (including the National Geographic Society—Army Air Corps flight) made in the United States to altitudes of 60,000 feet. The data obtained are interpreted in the light of analysis of the effect of the Earth's magnetic field and of the proof that the immediate agents responsible for the ionization of the atmosphere are electrons (+ and —) rather than protons or heavier nuclei. Sea-level observations indicated a longitude-effect. One of the Millikan-Neher self-recording electroscopes was installed on El Misti in Peru at an altitude of 19,000 feet to operate with monthly control-visits throughout the winter of 1934 to 1935 to obtain data regarding the absorption-coefficient of the cosmic rays as a function of the atomic number using various shields of lead, iron, and aluminum.

Dr. W. F. G. Swann of the Bartol Research Foundation of the Franklin Institute obtained high-altitude records of cosmic rays in the Piccard stratosphere-flight in the summer. He and his colleagues at the Foundation did much research in the laboratory on the nature of cosmic radiation and of showers or bursts of cosmic rays, and on deviations of cosmic-ray paths by magnetic fields.

SOLAR RELATIONS

The Mount Wilson Observatory reports that from Oct. 1, 1933 to July 1, 1934, 13 groups of the old solar cycle of sunspots and 21 of the new cycle were observed. Since all except one of the 21 groups of the new cycle had magnetic polarities opposite to those of the waning cycle, the reversal of polarities at the present minimum may be considered as well established. The new cycle is developing so rapidly that the time of minimum activity has certainly been passed, probably in November or December, 1933. The length of the last cycle was, therefore, approximately 10.3 years.

The average state of the Earth's magnetic field varies from day to day, reflecting apparently in the main solar activity. A leading problem is to correlate various measures of magnetic activity and of solar activity. Investigations of these were made by the Department of Terrestrial Magnetism for the years 1931 and 1932 in continuation of earlier work. The characteristic lag of terrestrial-magnetic activity behind solar activity occurring before a sunspot-minimum was confirmed. The study of the relations between various measures of terrestrial-magnetic activity and of solar activity was supplemented by using Brunner's series of monthly means of the profile areas of the solar limb-prominences in the years 1910 to 1932; this measure of solar activity was found only slightly, if at all, superior to the ordinary relative sunspot-numbers.

MAGNETIC ACTIVITY

The study of horizontal-intensity changes of the Earth's magnetic field in relation to annual values of magnetic activity to vertical-intensity changes was extended. It was found that a small but apparently real correlation exists between the annual values of the vertical magnetic force at various magnetic observatories and the annual values of magnetic activity. During magnetically disturbed years, the vertical force tends to be higher than during quiet years. This, in conjunction with a similar finding for horizontal intensity, is interpreted to denote that the external magnetic field of the Earth undergoes an 11-year periodic change, having a maximal value during magnetically disturbed years.

The "secular," seasonal, and diurnal distributions of 151 sudden commencements at Watheroo during 1919 to 1930 were examined and were found to be more common during active years than during quiet years, to be more frequent during local summer, and to exhibit a perference for the afternoon hours although they may occur at any time of the day. These observations are interpreted as evidence that a complex of two or more causes is operative in sudden commencements, one terrestrial and the other extra-terrestrial. The former is believed to be associated with the condition of the ionosphere which explains the seasonal and diurnal distributions, while the other is associated with the cause of magnetic storms and explains the secular distribution.

The relative magnitudes and the directions of the first large change that characterizes the sudden commencement of some magnetic storms show the relative magnitudes and directions of the change in the Earth's field and its vertical component for six sudden commencements as found from the magnetograms of 30 magnetic observatories fairly well distributed over the globe. There appeared to be but one systematic geographic distribution, namely, the general direction of change in the Earth's field was northerly everywhere except in and around the north polar regions and not far from horizontal everywhere including the polar regions. The average force-change of the principal movement of these sudden commencements showed that the two vectors are almost diametrically opposed for each seasonal group and for the year, and that they are in the plane of the Earth's geomagnetic axis but not parallel to the axis.

LUNAR RELATIONS

An investigation of the lunar diurnal-variations at Huancayo for the southern summer (November to February) for the years 1922-30 shows the lunar diurnal-variation in declination at Huancayo to be small, the ratio with respect to solar diurnal-variation being about solar:lunar=15:1, an order normal for most observatories and much less than that obtained from data at the Batavia Observatory in approximately the same latitude as Huancayo, the ratio there being solar:lunar=3.8:1. This is a significant result calling for revision of existing hypotheses regarding upper-air electric currents.

SECULAR VARIATION

A discussion of the latest secular-change values in the Caribbean Area and South America showed an almost complete disappearance of any area of positive change in both horizontal and total intensity and a marked increase in the negative rate of change in total intensity in the extreme southern part of the Continent. Possible relations between subcrustal convection-currents and magnetic secular-variation and that the magnetic secular-variation may be due to a change in the state of the magnetic material in the Earth's crust due to a rising or falling of isotherms in the lower part of the crust, were indicated.

ATMOSPHERIC ELECTRICITY

At Stanford University a second year of continuous recording of space-charge at two elevations was completed. The effect of turbulence as the chief factor in determining the variation was confirmed. Continuous records of dust-content of the air were made, and soon enough data will be available from which to warrant some inferences concerning the effect of dust upon the space-charge and gradient. Surface records of the gradient were continued, and five-year mean curves for the diurnal variation are now available. The reductions of the atmospheric-electric data obtained at College, Alaska, were continued by the Department of Terrestrial Magnetism, and furnish interesting information regarding the electrical conditions in polar regions.

IONIZATION

Studies were made of the various types of ions in the atmosphere with a view of gaining a better record of the balance maintained between them and of arriving at a more satisfactory quantitative theory of the process. Investigations relating to the ionization near the ground during thunderstorms and to the sources of the nuclei, particularly in connection with occupied rooms, were made. A study of electrical convection in the atmosphere, which plays so important a rôle in the development of the electrical state of the thunder-storm, showed a large definite diurnal-variation in the rate of ionization. Moreover, the ionization was found to increase several fold at the time of thunderstorms. The increase in ionization usually has an abrupt beginning, coinciding with the beginning of the rain. The total amount of increase is roughly proportional to the total amount of rainfall. The ionization begins to decrease as soon as the rain ceases, the decrease with time being of such a character as to be explainable by assuming that decay-products of radium, principally radium B and radium C in equilibrium with it, are carried to the Earth's surface by the rain.

Contrary to the expectation, there was found a distinct and systematic daily variation in the rate of ionization near the ground. It is possible to account for this observed variation on the assumption that convection-currents during the warmer part of the day carry radioactive materials away from the Earth's surface, thus diminishing the rate of ionization due to this source near the ground. This variation during the summer was found to be as much as 30 to 40 per cent and hence has an important bearing on atmospheric-electric studies. Correcting for the presence of intermediate ions, it has been possible to check more accurately the theories of small-ion formation and removal in the atmosphere.

EARTH CURRENTS

A more systematic study of the earth-current records from the Watheroo, Huancayo, and Tucson observatories have revealed definite observational evidence of an interesting new aspect of the system of electric currents circulating in the Earth's crust. There is not found, however, at Tucson that persistence of a single type of diurnal variation throughout the year which has been observed at Watheroo and Ebro, and also, though of a distinctly different type, at the equatorial station at Huancayo. Hodographs of the diurnal-variation data show marked changes from month to month and are repeated remarkably in the same months of different years. There is thus presented a promising basis for study, in conjunction with the corresponding magnetic records, to determine the relationship between the two phenomena.

A comparison of the earth-current and auroral records at College, Alaska, shows considerable agreement between aurorae and disturbances in the earth-current records. Effect associated with brilliant isolated auroral displays at College are readily detected in the earth-current records at Tucson and in exceptional cases in those obtained as far south as Huancayo, Peru.

EARTH-RESISTIVITY

A large electrical map of a region about 50 miles in diameter in central Massachusetts was completed by the Massachusetts Institute of Technology. According to recent theoretical results, it is possible to determine directly the variation of the electrical resistivity with depth, in a symmetrical earth, from such maps. The work is to be continued in areas especially selected for this purpose.

Dr. Ernst Cloos of the Johns Hopkins University proved by experiments that the quality of wireless reception from certain stations is influenced by geologic conditions of the underground. Structural disturbances like faults or steeply dipping rock contacts cause ''dead spots.'' A radio survey of such regions gives valuable indications for the determination of geologic structures.

INTERNATIONAL POLAR YEAR, 1932-33

The compilations and discussions of the vast observational material on magnetism, atmospheric electricity, earth-currents, and aurorae obtained at the special Polar-Year stations in North and South America and elsewhere are being rapidly assembled. Photostat copies of records and compilations of much of the work at stations of the United States were forwarded to the Polar-Year Commission at Copenhagen for coordination and distribution to interested investigators of various geomagnetic and geoelectric phenomena for discussion. Excellent progress also was made by the Meteorological Office of Canada in its compilations of results at the Canadian Polar-Year stations. A large number of articles discussing results have already appeared in American and European scientific journals.

PUBLICATIONS

For details of current progress and advance in geomagnetic and geoelectric research and for bibliography of important publications, reference may be made to the quarterly international *Journal of Terrestrial Magnetism and Atmospheric Electricity* published by the Johns Hopkins Press. This journal completed its 39th annual volume in 1934.

The American Geophysical Union, representing the United States as a unit of the International Union of Geodesy and Geophysics, was particularly active. Two volumes of transactions of its annual meetings held in Washington during April and in Berkeley, Calif., during June were published; they contain progress-reports and articles pertaining to geophysical progress and developments in North America.

Through cooperation of the Mount Wilson Observatory, the Alaska Agricultural College and School of Mines, the U. S. Coast and Geodetic Survey, the Carnegie Institution of Washington, and the United States Navy, data for an American Ursi-gram were compiled by *Science Service* and broadcast daily through the year from the Arlington station of the United States Navy.

METEOROLOGY AND CLIMATOLOGY

By Burton M. Varney

Associate Professor, University of California at Los Angeles

AIR MASS ANALYSIS IN WEATHER FORECASTING

The outstanding trend in American meteorology during 1934 was toward a still greater emphasis on ''air mass analysis.'' It has become increasingly clear that this method of approach to the problems of weather forecasting is indispensable. The broad principle underlying air mass analysis is simple. All weather, in the temperate zones at least, is due to the interactions between three great sets of influences: first, the physical conditions (as to temperature, moisture, etc.) induced in bodies of air—air masses—during their more or less protracted sojourns in certain ''source'' regions; second, the changes in those conditions caused by flow of the air masses from their source regions into regions of other character; third, the changes induced along the boundaries between different air masses because of the differences of physical condition of the air on opposite sides of the boundaries. Within the heart of a given air mass, far from its boundaries, the weather is largely the result of one or both of the first two influences. Along the boundaries (variously called ''fronts,'' ''surfaces of discontinuity,'' etc.), it is a result of the fact that while air masses mix only with the greatest difficulty, they do react upon each other (the more violently, the more they differ in temperature and moisture content) wherever they are in mutual contact.

Concerted attack upon the problem has inevitably developed two interlocking phases: the theoretical-applicational phase, which has produced a number of papers, notably from the meteorological department of the Massachusetts Institute of Technology, the Blue Hill Observatory of Harvard University, and the Scripps Institution of Oceanography of the University of California; and the observational phase, to which the U. S. Weather

Bureau is the largest contributor. On the first phase, a paper by J. Namias, ''Structure of a Wedge of Continental Polar Air Determined from Aerological Observations'' (Professional Note No. 6 of the Mass. Inst. Tech. Met'l. Course), exemplifies the methods of analysing what happens to an air mass originating in polar North America as it flows into lower latitudes, thereby coming into contact with air masses from warmer sources. H. R. Byers' ''Air Masses of the North Pacific'' (a forthcoming Bulletin in the Technical Series, Scripps Inst. of Oceanography) will be an important study of the origins of much American weather, even far into the center of the continent. Of special interest also, are papers by J. Namias dealing with the phenomenon known as subsidence, the slow settling of flat-dome shaped masses that constitute our regions of high atmospheric pressure in and from which develop some of our most frequent weather types.

Search for additional criteria by which to identify air masses is, in the present state of our knowledge, a vital part of air mass analysis. Two of these will be mentioned: atmospheric visibility and ''specific humidity.'' Continuing visibility studies by H. H. Kimball of Blue Hill Observatory, on the use of glass color screens as an aid in determining the extent to which solar radiation is being absorbed by water vapor, thus affording a clue to the amount of water vapor present in a given air mass, it is hoped will yield useful results. Specific humidity, as a means of defining the water vapor content of air, and little emphasized as yet in American textbooks on meteorology, bids fair to become very significant for air mass study. Specific humidity is the mass of water vapor present in a unit mass of air. As such, it is the quantity least likely to change during the varied life history of an air mass. Temperatures, relative humidities, vapor pressures and wind directions of two adjacent masses may have become so nearly identical as to make the two masses appear as one. Differences, if any, of specific humidity, across the boundary between them thus alone may reveal the presence of the two masses.

For a resumé of the principles (so far as they have been developed) of air mass analysis, there is at present no single source in meteorological literature. To supply this lack, the *Bulletin* of the American Meteorological Society began publication in its August-September number of a series of papers by J. Namias which will admirably summarize the current position.

AEROLOGICAL FLIGHTS

The amount of observational material required for air mass analysis over an area as large as the United States is enormous. With the limited funds at its command, the Weather Bureau is now operating six airplane stations for aerological flights daily to some 17,000 feet altitude. War and Navy Departments cooperate with seven stations each. The Massachusetts Institute of Technology maintains a similar station. Expansion from these meager beginnings must await public realization that scientific weather forecasting is a vitally necessary adjunct to efficient conduct of peace-time affairs, to say nothing of its importance for national emergencies.

In connection with the International Month, January, 1934, the Weather Bureau released from its Omaha Airport Station 46 sounding balloons carrying meteorographs, and made the remarkable recovery record of 96 per cent. The findings will be published by the International Commission for the Exploration of the Upper Air. Velocities and directions of upper-air winds at 75 aerological stations were recorded two to four times daily, when weather permitted, to an average altitude of 12,000 to 15,000 feet—an invaluable assemblage of data for forecasting, air navigation and theoretical studies of the atmospheric circulation. In the face of a reduction for the civil airways weather program of $250,000, the Bureau could make no extensions of service, but managed to continue operation on about 25,000 miles of airway through reduction of personnel and cooperation from the Department of Commerce. A system of remote control of the airways radio broadcasting was a material help.

RIVER AND FLOOD SERVICE

A division of the Weather Bureau little known by the general public, but of great importance because it watches over the safety of thousands of lives and untold millions in property values, is the River and Flood Service. Because of the serious and continuing financial handicap that has necessitated progressive retrenchment, much of the river guage equipment had become inadequate to supply data for the increasing needs of river-stage and flood forecasting and especially of studies on the relations between rainfall and stream flow. Such studies are of great and growing consequence to the whole problem of water conservation for power, irrigation, flood prevention and protection, and water supply. They will be essential to scientific national planning in those fields. Fortunately, an allotment of $150,000 from the Federal Emergency Public Works Administration made possible the replacement of 229 guages during 1934. Forty-seven of these are automatically recording, and will be a major factor in forwarding the investigations just mentioned.

RESEARCH

Vast stores of meteorological and climatological data accumulated by the Bureau have long awaited compilation in forms suitable for use in Research. CWA funds in 1934 made this possible. Data collected by the Bureau during its cooperation in the International Polar Year (*see* THE AMERICAN YEAR BOOK, 1933, p. 759) together with similar data from all the participating countries, is being entered on daily weather maps of the entire northern hemisphere. These maps will form the greatest series so far available for studies of world weather.

METEOROLOGICAL INSTRUMENTS

Improvements in meteorological instruments have been notable. An almost ridiculously simple change in the shape of the cups of the standard Weather Bureau anemometer has changed it from an instrument that used seriously to over-register wind velocities (and therefore required constant use of correction-tables) to one whose errors are all less than one mile per hour for wind velocities up to 100 m.p.h. The change consists of rolling the edge of each cup to form a ''bead'' a little less than 1/16 inch diameter. Experiments with cone-shaped cups, in progress, seem to show that they are better than the present hemispherical cups. Anemometry recorded its most dramatic achievement, in this or any other country, during the great wind of April 11-12 at the Mt. Washington Observatory in New Hampshire. On the 12th, the highest wind velocity for one hour was 173 m.p.h., for 5 minutes 188 m.p.h., for one mile 210 m.p.h., and for the extreme gust 231 m.p.h. Anemometers usually fail in hurricanes at some 150 m.p.h. For the Mt. Washington service, the specially designed anemometer contained electrical heating units to prevent the formation of ice on it, and the rotor consisted of little air scoops on the periphery of a thick disc instead of the usual cups on the ends of arms. After calibration by the U. S. Bureau of Standards, its performance was subjected to refined mathematical analysis by Prof. C. F. Marvin of the Weather Bureau, with the result that these almost unbelievable velocities constitute an official ''world's record.''

BAROMETER READINGS

The vexing problem of how to render barometer readings from the lofty western third of the United States comparable with those from the rest of the country for use on the Daily Weather Map has been subjected to a new attack by the Weather Bureau. The customary ''reduction to sea level'' of all barometer readings causes strange discrepancies on the maps. Wind and weather west of the Rockies not infrequently reveal the presence of a cyclonic (storm) circulation over that region when no such cyclone is shown by ''sea-level'' isobars. Meteorological fictions of this sort are intolerable in the field, for example, of air mass analysis. They quite obscure the locations of ''fronts,'' the relationships of air flow to pressure gradients, etc. Messrs. Little and Vernon in the *Monthly Weather Review* for May investigate the matter mathematically. They reach the conclusion that it is feasible to reduce barometric readings from the plateau stations either up or down to the 5,000-ft. level instead of to sea level, through proper modification of the corrections for vapor pressure, temperature and gravity, and they recommend the drawing of a 5,000-ft. map supplemental to that for sea level.

MARINE METEOROLOGY

Marine meteorology has made its greatest forward stride in years, due, paradoxically, to the economic stress. CWA funds enabled the Weather Bureau to convert no less than 5,000,000 weather observations from ships at sea to a usable basis of research. Groups of data will be available covering any part of any ocean from which observations have been received by the Bureau. Investigations can now go forward profitably into such diverse problems as the relationships between oceanic and continental weather, the ocean as a factor in climatic fluctuations, the characteristics of weather along proposed transoceanic flying routes, the air-conditioning of ships for any climate. On a different basis, studies of ocean-surface temperature for possible bearings on subsequent weather over the lands, have used the growing body of records from sea-water thermographs operated on steamships in the western Atlantic Ocean. C. F. Brooks (*Trans.* Amer. Geophys. Union) finds a small tendency to an inverse relationship between sea temperatures of a given month and air temperature and precipitation at coastal points a month later. The tendency appears to be stronger for precipitation than for temperature.

CLIMATOLOGY

In the field of climatology, probably the most significant advance was made in the matter of climatic classification. R. J. Russell, continuing his advocacy of the view that the effects of climate on the natural landscape are not due to *average* climatic conditions but to conditions occurring in the course of short or long period *changes* of climatic conditions, proposed the concept of the ''climatic year'' (see *Geographical Review,* Jan. 1934). For any place, every year is a climatic year in the sense that each of its meteorological values always of necessity falls within the limits assigned to some pure climatic type designated as ''nuclear'' because in the region where it occurs no year shows values outside of the limits of the type. Nuclear types are always separated by transitional zones. In these, the successive climatic years have in varying degree the meteorological values appropriate to the adjacent nuclear types. Somewhere in every transitional zone there is a 50 per cent frequency of climatic years appropriate to each of the neighboring nuclear types, and there if anywhere lies ''the boundary'' between these types. For the United States, Russell points out many striking correlations between both the nuclear and the transitional regions and plant associations in the natural landscape. Cultural landscapes are in some cases even more definitely correlated. The climatic year concept ''may be adapted for use with any type of quantitative climatic definition. Used in connection with short periods of observation it furnishes a sensitive index of climatic change. . . . It offers the possibility of studying climatic cycles in terms of a real distribution. Through the employment of differing periods it suggests the possibility of measuring relative rates of change between various groups of landscape forms in response to climatic conditions.''

MEETINGS

Scientific meetings dealing with meteorology and climatology, either directly or marginally, have been so numerous and so rich in contributions that no summary of them will be attempted here. The reader is referred especially to the *Bulletin* of the American Meteorological Society, the *Transactions* of the American Geophysical Union sections on meteorology, oceanography and hydrology, the *Journal of the Aeronautical Sciences*, the *Annals* of the Association of American Geographers, the *Monthly Weather Review* of the U. S. Department of Agriculture.

OCEANOGRAPHY

By H. A. Marmer

United States Coast and Geodetic Survey

ATLANTIC OCEAN

Ice Patrol and Cruises.—The annual ice patrol in the area of the Grand Banks of Newfoundland was resumed by the Coast Guard early in April. Seven cruises were made for the purpose of collecting data for the construction of surface isothermal charts of the Grand Banks region. Three current surveys were made, and 129 oceanographic stations were occupied in this area. During a short post-season northern cruise, 43 additional oceanographic stations were occupied between Cape Farewell, Greenland, and southern Labrador. The year proved to be one of abundant icebergs, 575 being reported south of latitude 48° North in the first seven months of the year as compared with an average crop for the seven months of 377 bergs.

Tide Observations and Hydrographic Surveys.—The Coast and Geodetic Survey maintained nineteen primary tide stations along the coast from Maine to Florida for the purpose of hydrographic control and for determination of changes in sea level. Four of the Survey's ships were engaged in surveying the continental shelf off the coast of Virginia covering an area of approximately 5,000 square miles. These surveys developed a deep and narrow submarine valley which starts at the 50-fathom curve and is still in evidence in depths of over 1,000 fathoms. This feature is of special navigational importance since it lies in the northern approach to Chesapeake Bay and can thus serve as an underwater landmark for checking the position of vessels bound into the Bay.

The Woods Hole Oceanographic Institution continued the chemical investigation of the Gulf of Maine. During the winter months the research ship *Atlantis* completed the survey of the Caribbean which was begun last year. Complete serial observations were made at 84 additional stations, mostly south of Jamaica and in the Bay of Guatemala. A new instrument was developed by Professor C. G. Rossby and named by him the ''Oceanograph'' by means of which pressure-temperature curves from moderate depths are secured. These permit a comprehensive study to be made of the wind-stirred surface layer of water. Studies on the penetration of light into the sea were continued.

The Blue Hill Meteorological Observatory of Harvard University investigated the relation between the weather along the middle and north Atlantic seaboard and the ocean-temperature sequence in the western Atlantic region. From this it appears that the temperature fluctuations of the coastal waters may give indications of the departures in air temperature and precipitation of the following month along the adjacent coast.

PACIFIC OCEAN

Hydrographic Surveys. — The Hydrographic Office of the U. S. Navy continued the survey of the west coast of Panama during which 25 dynamic stations were occupied for temperature and salinity data. The U. S. S. *Ramapo* made four crossings of the North Pacific adding 2400 soundings in this region. One unit of the U. S. Fleet, consisting of several ships and planes, was engaged in survey operations in the area of the Aleutian Islands, while another unit ran several lines of sonic soundings between the Aleutian and Hawaiian Islands. Vessels of the Coast and Geodetic Survey were engaged in surveys along the coast of California between Monterey Bay and Point Conception and around the Santa Barbara Islands. This work included wire-dragging of sections of the coastwise steamer tracks in connection with which several dangerous uncharted rocks were discovered. A number of submarine valleys were developed off Point Conception which are of importance to the mariner in rounding this point.

Tide Observations.—Ten primary tide stations were maintained in continuous operation by the Coast and Geodetic Survey along the coast from California to Alaska for the purpose of furnishing hydrographic control and for the determination of changes in sea level. A special tidal survey of the coast of Washington was made in order to develop the tidal features in these waters and more particularly for the purpose of determining accurate tidal datum planes to serve as reference planes for elevations.

The Scripps Institution of Oceanography conducted investigations in dynamic oceanography; on the relation between conditions in the sea and meteorological conditions over the adjacent coasts; on the relations between the chemical properties of sea water and plant growth and geological processes; on the nature and origin of sediments on the sea bottom; on the rôle of microorganisms in the biological productivity of the sea; and on the physiology of marine organisms and their relation to their environment. Through cooperation with the U. S. Navy, 300 temperature observations and water samples were secured for analysis from various depths at 18 stations between the Aleutian and Hawaiian Islands.

The Oceanographic Laboratories of the University of Washington carried on investigations in Puget Sound and adjacent waters, in connection with which the research ship Catalyst made an extended study of the waters of Puget Sound and the Strait of Juan de Fuca, and cruised to the Queen Charlotte Islands and the islands of Southeastern Alaska. The effects of upwelling of water near the mouth of the Strait of Juan de Fuca were studied in relation to the distribution of marine organisms. The total vertical absorption coefficients of seven different spectral bands were measured at three stations. Refined measurements of electrical conductivity and the refractive index of sea water of varying chlorinity and temperature were made and the detailed study of the plankton of the northeastern Pacific was continued.

GULF OF MEXICO

Tide Observations and Hydrographic Surveys. — The Coast and Geodetic Survey maintained in operation four primary tide stations, furnishing tide data, hydrographic control, and sea level changes in this body of water. The C. & G. S. Ship *Hydrographer* continued surveys off the coast of Louisiana, extending detailed hydrography to the 100-fathom curve. Several unusual coral shoals and a submarine valley were discovered in the vicinity of the 100-fathom curve.

GENERAL

Record Deep Sea Dive.—A new record in deep-sea diving was made by William Beebe and Otis Barton when they descended in their bathysphere to a depth of 3028 feet—more than half a mile—below the surface of the sea off the shores of Bermuda on Aug. 15.

Meeting, Section of Oceanography.—The annual meeting of the Section of Oceanography of the American Geophysical Union was held in Washington, D. C., April 27, 1934. Papers were read by representatives from the various Federal and educational institutions engaged in oceanographic work, outlining the progress and development of oceanography during the past year. These papers appear in full in the *Transactions of the American Geophysical Union* published by the National Research Council in June, 1934.

AMERICAN EXPLORATIONS

By Robert M. Brown

Rhode Island College of Education

EXPLORATORY FLIGHTS

Lieutenant Commander Knefler McGinnis with six officers and 24 men in six United States seaplanes left San Francisco Jan. 10, 1934, and landed the following day at Pearl Harbor, Honolulu. The distance of 2,408 miles over water was covered in 24 hours, 56 minutes, and exceeded General Balbo's over-water flight from West Africa to Brazil by nearly 600 miles.

George R. Pond and Cesare Sabelli, attempting a non-stop flight from New York to Rome during May, 1934, made a forced landing in Ireland. The press reported that Pond believed the plane had been tampered with before leaving New York.

Benjamin and Joseph Adamowicz left New York June 28, 1934, for a transatlantic flight to Warsaw. After an overnight stop at Harbor Grace, Newfoundland, they resumed their journey over the Atlantic and landed in France at a point near Fleus de Lorne. The brothers were making their second attempt at this flight. Last August their plane was damaged while landing at Harbor Grace.

Paul Codos and Maurice Rossi left Le Bourget, France, May 27, for a non-stop flight to California, a distance of 6,100 miles, but were forced to land at Floyd Bennett Field on the afternoon of May 28. Heavy vibration of the wings made a landing advisable. The plane, the *Joseph Lebrix,* is the one in which they established their long distance flight record last year.

James Ayling and Leonard Reid, on August 9, flew from Wasaga Beach, Ontario, and landed at Heston Airport, England. Their objective was Bagdad, Irak, and the establishment of a long distance flight record of 5,657 miles. The combatting of fog, adverse winds and rain squalls took a heavy toll of their gasoline supply.

Richard U. Light and Robert Wilson of Yale University and New Rochelle, New York, respectively, took off secretly from New York, Aug. 20, and reached Europe in September by way of Cartwright, Labrador, and Julianhaab, Greenland. They are reported to be making a leisurely journey around the world.

London to Melbourne Race.—The London to Melbourne 11,300-mile air race planes set out from the Mildenhall Airdrome on Oct. 20 for a $50,000 first prize posted by Sir MacPherson Robertson of Melbourne. On Oct. 23 the first plane reached the Flemington race course, Melbourne, with C. W. A. Scott and Campbell Black, an English team, winning the prize with a flying record of 2 days, 22 hours, and 25 minutes. The previous record was 6 days, 17 hours, and 45 minutes. A Dutch team, K. D. Parmentier and J. J. Moll won second place after a close race with an American team, Col. Roscoe Turner and Clyde Pangborn, the latter gaining third place. Another American team, John H. Wright and John Polando, were among the starters but they encountered difficulties and delays in Western Asia.

Sir Charles Kingsford-Smith and Capt. P. G. Taylor left Brisbane, Australia, on Oct. 20, on a flight to Oakland, Calif. The first lap of the journey to Suva, Fiji Islands, 1,760 miles, was accomplished in 12 hours. On Oct. 28 the pair left Suva and reached Wheeler Field, Honolulu, in 25 hours, 5 minutes, covering 3,197 miles. On the final leg of the journey Kingsford-Smith left Honolulu on Nov. 3, and landed at Oakland on Nov. 4, completing the 2,408-mile flight in 14 hours and 59 minutes. During 1928 Charles Kingsford-Smith flew from Oakland to Brisbane, Australia, with three companions in 84 hours, 29 minutes.

STRATOSPHERE FLIGHTS

Kepner-Anderson-Stevens.—Major William E. Kepner, Captain Orville Anderson and Captain Albert W. Stevens ascended to an altitude of about 60,000 feet from the Black Hills, South Dakota, in the National Geographic-Army Air Corps stratosphere expedition. At that altitude the balloon became badly ripped, started to descend, and as a crash was inevitable the occupants, on nearing the ground leaped from the metal gondola and landed safely. The gondola crashed to the ground in a cornfield near Holdredge, Nebraska.

From the wreck a number of instruments have been salvaged and the results obtained include a film record with a complete history of cosmic-ray intensity measurements; records of temperatures in and out of the gondola, sun and sky brightness, the time of each measurement and the tilt of the gondola during the entire flight, and recovery of the barographs which gives the elevation as 60,613 feet. Lieutenant Commander T. G. W. Settle and Major Chester L. Fordney ascended in November, 1933, to 61,237 feet.

Dr. Jean Piccard and his wife Jeannette, made a stratosphere flight on Oct. 23 from Detroit and landed in a treetop 4½ miles southwest of Cadiz, O., eight hours after their starting time. Dr. Piccard reports that the flight was a success and that the valuable instruments were not seriously damaged. The height was estimated at 10 miles. During May, 1931, Prof. Auguste Piccard, brother of Jean, ascended twice into the stratosphere to nearly 10 miles.

POLAR EXPEDITIONS

Rear Admiral Richard E. Byrd, in the *Jacob Ruppert,* cargo vessel and the *Bear,* with seventy men, dogs, airplanes and scientific equipment left in the autumn of 1933 on his second Antarctic expedition. He planned to spend a year at his old base of Little America on the Bay of Whales. A new twin-motored Curtiss-Condon seaplane and an autogiro were carried and in addition there were plans to salvage the two planes left at Little America in 1930. The contemplated flights included one over the South Pole, one across to the Weddell Sea and one to the South Magnetic Pole. On March 28, 1934, Admiral Byrd was left at the Bolling advance weather base for the purpose of making meteorological observations 123 miles nearer the Pole. Here he remained alone until he was rescued in a weak condition on Aug. 11. His radio equipment did not function successfully and at times he was completely out of communication with his companions. Banked in by snow, the fumes from the kerosene stove were troublesome and the cooking of food and the heating of the hut became increasingly hazardous.

Lincoln Ellsworth left Dunedin early in December, 1933, in his base ship, the *Wyatt Earp,* with his air pilot Bernt Balchen for the Bay of Whales. He planned a non-stop flight of 2,900 miles from the Bay of Whales to the Weddell Sea and return. He carried a specially constructed Northrop monoplane equipped with cameras arranged to take a continuous photographic record. Sir Hubert Wilkins acted as historian of the expedition. During the breaking up of the ice of the Ross Barrier the ship and the airplane—*The Polar Star*—were too greatly damaged to carry out the program and the party was forced to return to Dunedin.

Lieutenant Commander Donald B. MacMillan made a 76-day trip into the Arctic on the schooner *Bowdoin* for the collection of plants and animals. Twenty thousand specimens of Arctic flora and the skins of 300 northern birds were brought back. This was MacMillans' fifteenth voyage into the North.

OCEAN DEPTHS

Dr. William Beebe made two descents into the ocean near Nonsuch Island, off Bermuda, in the National Geographic Society-William Beebe Expedition. In a steel ball connected by telephone with the barge from which they went down Dr. Beebe and Otis Barton descended to a depth of 2,510 feet. Three days later on Aug. 15, they were lowered again in their bathysphere to the record depth of 3,028 feet, passing their goal of half a mile by 388 feet. Apart from observations of strange fish at these depths no record of the explorations are available. The pressure on the bathysphere at the maximum depth is estimated at about 1,000 pounds to a square inch.

FIELD MUSEUM OF NATURAL HISTORY

Guatemala. — Karl P. Schmidt, leader of the Leon Mandel Guatemala Expedition, sailed from New Orleans, Nov. 22, 1933, for a six-months survey of the Guatemalan country. The Field Museum has carried on in the past few years an extensive program of investigation of the fauna of the American tropics, and the present expedition plans to further these studies. The diversity of altitude and climate in Central America results in a great variety of animal species. A specimen of the rare centurio bat has been captured.

Near East.—Henry Field led the Marshall Field Anthropological Expedition to the Near East. The party will collect anthropological materials for addition to the collections of the museum and will make an anthropometric survey of the Kurd, Arab, and Bedouin populations of Iraq and Persia. From Bagdad the expedition will go to Rowanduz to study reported caves with prehistoric rock drawings and inscriptions and then proceed to Tiflis, Teheran, and Rhages.

Africa.—The Straus West African Expedition, led by Rudyerd Boulton, obtained extensive zoological collections in Senegal, Nigeria and Angola (Portuguese West Africa) including some very rare birds.

British Honduras.—An archeological expedition to British Honduras, under the leadership of J. Eric Thompson, conducted researches of ancient Maya sites and collected Maya artifacts.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES

This society sent into the field during 1934 twelve expeditions and maintained the most expensive exploring and collecting program in its history. Those outside of the United States and Alaska are indicated below.

Africa. — George Vanderbilt of New York led an expedition from Nairobi, British East Africa, on a five-months journey through Central Africa to Timbuctoo. The party sought animals for the museum, especially the bongo, the okapi, the giant eland and dwarf buffalo.

Asia.—Brooke Dolan II is planning to spend a year in Western China and Tibet collecting birds, mammals, fishes and plants. The party plans to set out from Chungking, 1,200 miles up the Yangtse River and take a 500-mile overland journey to Batang. Through the courtesy of the Chinese Government the party will explore regions seldom visited by white men.

In Siam, Rodolphe M. deSchauensee is continuing the work begun in 1928 of collecting. Already some 4,500 birds, 6,000 fishes, 300 reptiles, 100 mammals and insects have been received.

Central America.—M. A. Carriker, Jr., is extending his work begun in Peru to Bolivia. He has completed four years of study of the distribution sources and relationships of the birds.

Dr. Henry A. Pilsbry, Dr. Francis W. Pennell and Cyril H. Harvey are collecting mollusks and plants in the high plateau of central Mexico. The work of the expedition will aid in completing a chart of the routes taken by mammals, mollusks, insects and plants which in the distant past moved northward from South America.

Greenland.—A party led by William K. duPont Carpenter in Capt. Robert Bartlett's schooner *Morrissey* to secure specimens of birds and mammals and to collect fishes and other sea animals went to the west coast of Greenland. Their farthest north objective was Ellsmere Land to obtain specimens of Peary's white caribou. A study of the breeding and nesting habits of the greater snow goose and the brant is also on the program. The party returned during October, 1934.

UNIVERSITY EXPEDITIONS

Harvard. — In cooperation with Cambridge University, England, and University of Copenhagen, Denmark, Harvard University is studying the effects of adaptation and acclimatization of man and animals at high altitudes in the Himalayas. Locating the base camp at 17,500 feet in the Kolumpa Valley, near Leh, the expediditon will study the natives, known as Ladaki of Tibetan stock, who live between the altitudes of 16,000 and 18,000 feet. Apparatus will be taken to study respiration, circulation, metabolism, heat regulation, cardiac performance and the like under varying conditions.

An expedition of the department of tropical medicine of Harvard University left on April 25 for the Katanga region of Africa. The expedition is under the control of Dr. Richard P. Strong of Harvard.

Yale.—The second oceanographic expedition to the Gulf of Mexico and Caribbean Sea left during January, 1934, on the research ship *Atlantis* under the joint management of Yale University and the Woods Hole Oceanographic Institution. The plan is to complete the investigations inaugurated by Yale University in the area between Jamaica and Central America and between Caiman Islands and the southern coast of Cuba. The study of the quantity, nature and origin of the floating Sargasso-weeds and of the animals that live among them will be continued. C. M. Breeder of the New York Aquarium will study the habits, development and relationships of the flying fish.

The seventh and final season of joint excavations in the Valley of the Caves, Mount Carmel, Palestine, under the direction of the American School and the British School of Archeology was announced to begin during March, 1934.

University of Rochester. — This University under the auspices of the Bernice P. Bishop Museum of Honolulu organized for geological research in the Lau Islands of eastern Fiji for the months of February to September of this year. A study of the fossils found in the limestone, it is hoped, will disclose the geologic age of the islands and permit the correlation of them with the surrounding land areas. Altogether 18 islands have been studied in some detail from Ongea in the south to Vanua Mbalavu in the north.

THE AMERICAN MUSEUM OF NATURAL HISTORY

South America.—Dr. Wendell C. Bennett, Assistant Curator of Anthropology, returned in September from the Lake Titicaca region, South America, where he had been since the previous December, continuing the survey and excavation in the high plateau of Bolivia, begun by the Museum in 1932. Several new sites were discovered in Bolivia belonging to the so-called Tiahuanaco culture. Since previously but one site for this culture was known, this is a discovery of unusual importance. The work in Chile was almost equally fruitful, Dr. Bennett having brought with him a considerable collection of new material.

The Second Scarritt Patagonia Expedition under Dr. George G. Simpson, Associate Curator of Vertebrate Palaeontology, was in northern Patagonia where he and his assistant, Coleman Williams, spent several months. The most important discovery was a small deposit, possibly the filling of volcanic blowout, extremely rich in fossil remains. Six complete skeletons about the size of a horse and numerous more fragmentary specimens were obtained. Most of these will probably prove new to science.

North America.—F. Rainey returned from Puerto Rico where he discovered two distinct cultures in addition to the shell heap culture which, it was always supposed, was the only culture on the islands. One is of Central American origin and the other is indeterminable as yet. This is a most important discovery because it indicates that there had been inhabitants before the shell heap people who were driven out by succeeding invasions.

Junius Bird is back from Labrador where he succeeded in discovering several prehistoric sites and carried out extensive excavations.

The Snyder Canadian Expedition, under the leadership of Harry Snyder, with George G. Goodwin, Assistant Curator of Mammals, is at present in the Northwest Territories, Alberta, and British Columbia to collect wood bison, mammals and birds.

The American Museum-Sinclair Expedition under Dr. Barnum Brown, Curator of Fossil Reptiles, accompanied by Messrs. P. C. Kaisen of the Museum staff and G. E. Lewis of Yale University and Darwin Harbict of Montana went to Wyoming in the spring to excavate and ship to the American Museum of Natural History two fossil Sauropods which Dr. Brown had discovered on a previous expedition. In addition to this, the party unearthed the remains of 15 skeletons of pre-historic mammals.

Asia.—The Sage West China Expedition under the leadership of Dean Sage, Jr., and Anne Tilney Sage and the staff of the American Museum is represented by T. Donald Carter, Assistant Curator of Old World Mammals, and William G. Sheldon. They plan to stay until February, 1935, to collect golden monkeys, giant panda and other specimens of mammals and birds for the Hall of Asiatic Mammals in The American Museum of Natural History.

Arthur S. Vernay, Field Associate in Mammalogy, left in December for northern Burma to the Chin and Kochin country to secure birds and mammals in the Manipur and a new tsine which is supposed to exist there. Then he will go from Rangoon to Penang for the *Sondaicus*.

Polynesia. — Roswell Miller and Dr. H. L. Shapiro, Associate Curator of Physical Anthropology, returned from Tahiti early in 1934. Dr. Shapiro carried on investigations in physical anthropology and Mr. Miller obtained motion pictures in color of the coral reef life.

The New Guinea Expedition of 1933, headed by Richard Archbold, Research Associate in Mammalogy, returned early in 1934 after spending sixteen months in British New Guinea. This expedition accomplished the unique feat of climbing Mt. Albert Edward and establishing camp at a high altitude on the range long enough to obtain magnificent specimens of little known fauna and flora of the region. Collecting was also done in the lowlands west of the Fly River.

The Whitney South Sea Expedition, under the leadership of W. F. Coultas, spent the entire year working on the islands New Ireland and New Britain, collecting mammals and birds.

The Templeton Crocker South Sea Expedition left San Francisco Sept. 15 for a scientific expedition to southern Polynesia. Dr. H. L. Shapiro, Associate Curator of Physical Anthropology, will continue his extensive studies of Polynesian peoples. Dr. James P. Chapin, Associate Curator of Birds of Eastern Hemisphere, and Francis Jaques will collect material for habitat groups of oceanic birds. Four ornithological groups are to be obtained—one in the Marquesas, one in the Tuamotus, one of the sea birds off the coast of Peru, and the other in the Galapagos.

OTHER EXPEDITIONS

R. H. Mansfield of the Carnegie Institution of Washington is studying the secular change in the earth's magnetism. Mr. Mansfield has been for over a year at the Huancayo Magnetic Observatory in Peru. He plans to make stops at Buenos Aires and Cape Town, and then proceed along the east coast of Africa to Aden, Port Sudan and Suez taking magnetic observations at selected stations previously occupied by the observers of the Carnegie Institution.

Dr. Ales Hrdlicka on this sixth expedition to Alaska under the direction of the U. S. National Museum and the Smithsonian Institution plans the study of the coming of man from Asia. The locations of long abandoned sites of human habitation and old skeletal remains which may show what types of men came were objectives of the search. The season's work was concentrated on Kodiak Island. Dr. Hrdlicka's party was made up of volunteer students.

B. A. Krukoff returned from his fourth expedition into the Amazon Basin with 15,000 herbarium specimens and several thousand samples of Brazilian wood. Mr. Krukoff devoted his time to localities along the tributaries of the Purus and Jurura Rivers.

XX. GEOPHYSICAL SCIENCES

CARTOGRAPHY

By W. L. G. Joerg

Research Editor, American Geographical Society

NATIONAL MAPPING

Topographic Mapping.—The outstanding development in American cartography during 1934 was the attention devoted to the topographic mapping of the United States, with a view to its being expedited and completed. With the exception of Russia the United States is the only great power in the world that lacks a detailed map of its entire area. While the great size of our country creates a mapping task of far greater magnitude than the tasks long successfully accomplished by most of the nations of Europe and even by Japan, the fact that the Survey of India surveyed and published in 28 years (1905-1933) maps on the scale of 1:63,360 of 1,100,000 square miles of so densely populated and relatively so rugged a country indicates that it is not unreasonable to expect more rapid progress than has been made in our own mapping. Since the establishment in 1879 of the U. S. Geological Survey only 45 per cent of the country, or 1,360,000 square miles, has been topographically mapped and only 25 per cent adequately. This relatively poor showing is in part due to the anomaly of having assigned a task, which in other countries is recognized as requiring the undivided attention of an entire organization by itself, to a bureau whose primary function is intrinsically of quite different a nature. The Temple Act of 1935 (The American Year Book, 1926, p. 865), which provided for the completion of the topographic map by 1945, has proved ineffective because its provisions as to appropriations were not mandatory. The national land-planning movement of the present general recovery program has, therefore, found itself faced with a lack of the basic map material, as, to cite but one example of many, in the Tennessee Valley Basin. A number of committees have studied the situation during 1934 but their recommendations are not available at the time of writing.

Mississippi Alluvial Valley. — An example of what can be done under a unified objective is afforded by the 177 topographic sheets on the scale of 1:62,500 of the alluvial valley of the Mississippi from Cairo to the Gulf, surveyed and published by the Corps of Engineers, U. S. Army, within the short space of five years (1929-1933). In scale, sheet division, general treatment and content they conform practically exactly to the standard topographic maps of the U. S. Geological Survey, and, as the 45,000 square miles they cover have not yet been represented by that Survey, they may be considered to all intents and purposes a part of that series. The rapidity with which they were produced is mainly due to air photography. In the general application of this technique lies the solution of the program of completing the map of the United States with reasonable promptness.

AVIATION MAPS

Although they are not produced by air photography but are mainly office compilations, the Sectional Airway Maps in 1:500,000, being published by the U. S. Coast and Geodetic Survey, may be considered in this connection in as much as they will, in the not distant future if the present rapid progress is maintained, provide a uniform sheet map of the whole United States. Still in project status five years ago (The American Year Book, 1929, p. 663) the series has already materialized to the extent of 27 out of a total of 87 sheets. Although it cannot, because of its relatively small scale, replace the topographic map, it does supply the first relatively intimate representation of the country in sheet form so far available. In general concept it is closely akin to the International Map of the World in 1:1,000,000, and, as the United States sheets of this undertaking have lagged so greatly that only 4 sheets of a total of 43 have so far appeared, it may in the meantime fulfill many of the purposes of that series. The greater detail permitted by the twice-larger scale is offset, however, by the less effective representation of relief due to the large contour interval used to separate the altitude tints on the map (contours at 1000, 2000, 3000, 5000, 7000, etc. feet). Although these contours are presumably adequate for aviation, as terrain when viewed from the air tends to "flatten out," they are not close enough for a general geographical map of this scale. An interesting comparison is afforded by the new Ottawa-Montreal sheet of the Canadian 1:506,880 series (Topographical Survey of Canada, Ottawa, 1933), which abuts to the north on the Albany sheet of the American sectional series. Here the closer contour interval (contours at 500, 1000, 1500, 2000, 3000, 4000 feet) gives plasticity to the relief of the northern Adirondacks and Green Mountains, whose southern parts are almost characterless on the Albany sheet.

The experimental aviation map whose preparation was decided upon at a conference at the American Geographical Society in October, 1929 (THE AMERICAN YEAR BOOK, 1929, p. 664) was published with accompanying text by O. M. Miller, in the *Geographical Review* for January, 1933 (Vol. 23, Pl. 1). The sheet, in 1:500,000, embraces the Pittsburgh-Cleveland area; its distinctive feature is the representation of land in gray—in different strengths to show elevation—with rivers and other water features in white. A valuable publication is *Airways of America* by A. K. Lobeck (New York, 1933) in which the air route between New York and San Francisco is described and illustrated in terms of the author's "block diagram" map of the United States (*see* THE AMERICAN YEAR BOOK for 1925, p. 878). Similar maps by Guy-Harold Smith illustrate N. M. Fenneman's *Physiography of Western United States* (New York, 1931).

RELIEF MODELS

As part of its program of work for the 200-odd unemployed engineers, architects, draftsmen and others on its staff the New York University Cartographic Study, organized late in December, 1932, by Professor C. J. Kraemer, Jr., has, in addition to architectural and institutional models relating mainly to ancient history, produced a series of relief models on the horizontal scale of 1:1,000,000 (vertical exaggeration ten times) of the Mediterranean countries, of which those for the North Sea countries, Spain, Italy, and the Balkan Peninsula are completed. For the Mississippi Valley Committee of the Department of the Interior a relief model of the Mississippi Basin on a horizontal scale of about 1:600,000 was prepared in the short time of five weeks.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN ASSN. OF PETROLEUM GEOLOGISTS, Box 1852, Tulsa, Okla.

AMERICAN GEOGRAPHICAL SOCIETY, Broadway at 156th St., New York City.

AMERICAN METEOROLOGICAL SOCIETY, Blue Hill Observatory, Milton, Mass.

APPALACHIAN MOUNTAIN CLUB, 5 Joy St., Boston, Mass.

ASSOCIATION OF AMERICAN GEOGRAPHERS, University of Pennsylvania, Philadelphia, Pa.

EXPLORERS CLUB, 10 W. 72nd Street, New York City.

GEOLOGICAL SOCIETY OF AMERICA, 419 W. 117th Street, New York City.

NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.

SEISMOLOGICAL SOCIETY OF AMERICA, Clark University, Worcester, Mass.

DIVISION XXI

CHEMISTRY AND PHYSICS

INORGANIC AND PHYSICAL CHEMISTRY

By Hugh S. Taylor

Professor, Princeton University

HEAVY WATER

Deuterium.—The field of scientific work covered in this report has been dominated during the present year by the recent discovery and isolation in pure form of the hydrogen isotope of mass 2, to which the name deuterium has been given. The researches of this year have succeeded in producing, in marked quantities, heavy water in which all of the hydrogen atoms have a mass 2. With this as a starting material a large number and wide variety of researches have been conducted having for their objective a determination of the divergencies produced by such isotope substitution or, alternatively, a restudy of reactions involving hydrogen to obtain a more penetrating analysis of underlying theory. The literature of the subject has grown prodigiously and at the present time there are about 300 communications dealing with the various aspects of the subject.

Properties of Heavy Water.—With the production of larger quantities of the pure deuterium oxide it has been possible more exactly to define the costs of production and the physical properties. The electrolytic process of production is now operated commercially to yield deuterium oxide for sale at a price of $20 per gram. The best value for the density of the pure oxide is at present 1.1079 at 25° Centigrade referred to ordinary water at the same temperature. The freezing point is 3.82° Centigrade. Its abundance remains about one part in 5,000 in ordinary water although some recent figures suggest a more dilute ratio of one part in 9,000.

Isotope Exchange Reactions.—The ease with which exchanges between light and heavy hydrogen in compounds containing hydrogen will occur has been well defined during the present year. One of the more important of these exchanges is that between hydrogen or deuterium gas and water or heavy water. It is now known that this equilibrium process, $HD + H_2O \rightleftarrows HDO + H_2$ or correspondingly $HD + D_2O \rightleftarrows HDO + D_2$ is achieved in the presence of catalysts either in liquid water-hydrogen systems or in the vapor phase. Nickel and platinum in finely divided form accelerate the liquid phase reaction as do also certain micro-organisms, such as bacterium coli, which are dehydrogenating in their effect. In the vapor phase nickel, platinum, and catalytic oxides such as chromium and zinc oxides readily assist such an exchange reaction and its occurrence may be a matter of difficulty in the preparation of pure deuterium. Reaction of this latter with residual water vapor in an apparatus may readily introduce light hydrogen into the system. The position of equilibrium in the reaction at various temperatures has been determined both theoretically and experimentally, and advantage has been sought in the magnitudes of the equilibrium data to set up an alternative method of concentration of waters dilute in deuterium. When hydrogen gas containing deuterium is bubbled through ordinary water with a catalyst present, the equilibrium is such that the deuterium passes from the gas to the liquid water. In this way a three or four-fold concentration of deuterium in water may be achieved and thus as much as 75 per cent of the power costs in the electrolytic process of production may be avoided. It still remains to be seen whether such an alternative process will compete with the purely electrolytic process.

An exchange reaction of fundamental significance in the theory of catalysis is that reported from England in which deuterium will exchange with the hydrogen of ethylene and benzene in presence of catalysts such as copper, nickel and platinum. Such an exchange reaction would never have been detected without the heavy hydrogen isotope and its demonstrated existence modifies and defines prevailing concepts of the rôle of the catalyst in such industrially important reactions as ammonia synthesis, fat hardening and the synthesis of alcohols from water gas. Ammonia has recently been shown to exchange similarly with deuterium gas in presence of synthetic ammonia catalysts. The exchange of hydrogen atoms in molecular hydrogen with those of deuterium in the heavy molecule, $H_2 + D_2 = 2HD$, has also been shown to occur rapidly in presence of catalysts at temperatures as low as that of liquid air, an observation which also reveals that the catalyst must activate the species with which the hydrogen is to react in order that important technical syntheses may be achieved, and that this activation and reaction with the activated hydrogen are the processes which require the higher temperatures of operation employed industrially.

A number of other exchange reactions between heavy water and organic compounds have been studied. The hydroxyl (OH) groups of cane sugar, glucose and cellulose exchange readily for (OD) in heavy water. The hydrogen atoms bound to nitrogen in albumen readily exchange. Acetylene, C_2H_2, and acetone, CH_3COCH_3, do not replace their hydrogens in acid solutions in heavy water, or in neutral heavy water but do so readily in alkaline heavy water. These results indicate the acidic nature of acetylene and confirm well established views as to a labile equilibrium obtaining in solutions of acetone giving rise to the molecule $CH_2{:}C(OH).CH_3$ the (OH) of which readily exchanges. In the compound $CH_3CH_2NO_2$ the hydrogen atoms next to the NO_2 group readily exchange; the more remote ones do not. In this latter case the rate can be measured and it has been shown that H atoms leave more readily in heavy water than in light. Similarly cane sugar is broken down more readily in heavy water solution than in light water. This accelerating action of heavy water has been used to give the theoretical chemist a more detailed picture of reaction mechanism in reactions of this kind occuring in water media.

Further Velocity Data.—In many reactions the deuterium containing species reacts more slowly than the corresponding hydrogen compound. This is true of the relative rates of reaction of bromine or chlorine with deuterium and with hydrogen. Mutarotation of glucose occurs one third as fast in heavy water as in light water. Fermentation of sugar by yeast is only one ninth as fast in heavy water as in light. Catalase decomposition of hydrogen peroxide is less than one half as fast in the heavy medium. These biologically important reactions, therefore, show varied effects of heavy water and it may be that it is the dislocation of the normal balance of velocity processes which accounts for the toxicity of heavy water media, an effect which is in general that of an unfavorable environment.

In the field of photochemistry it has been shown that deuterium atoms are equaly as reactive as hydrogen atoms. Since deuterium modifies explosibility limits in hydrogen-oxygen explosions definite conclusions can be drawn as to the mode of explosion involved. Deuteroammonia, ND_3, is photochemically more stable than ordinary ammonia, NH_3, under the same type of illumination.

Tritium, Hydrogen Isotope of Mass 3.—Experiments in Cambridge under Lord Rutherford suggested that deutons, the nuclei of deuterium, could be used to bombard deutons to produce new forms of matter. Experiments showed that two products result, the hydrogen isotope of mass 3 together with hydrogen of mass 1 or alternatively a helium isotope of mass 3 and a neutron.

$${}_1D^2 + {}_1D^2 = {}_1T^3 + {}_1H^1$$

and

$${}_1D^2 + {}_1D^2 = {}_2He^3 + {}_0n^1$$

Experiments have shown that in pure deuterium oxide there is present a small quantity of this third isotope, approximately one part in 200,000. This means that in ordinary water the tritium concentration is not more than one part in a billion. The nuclear bombardment experiments increase the relative concentration of tritium in deuterium markedly and a forty-fold concentration of this, the rarest of all the known naturally occurring isotopes, has been achieved. On a very conservative estimate such water composed exclusively of T_2O would be worth $1,000,000 per gram.

Oxygen Isotopes.—Some progress is to be recorded in respect to oxygen isotopes. Further investigations have indicated a normal atomic isotope ratio $O^{16} : O^{18} = 500:1$. Electrolysis is known to displace this ratio slightly, but very much less effectively than in the case of hydrogen isotopes. The ratio does not seem to vary much in various meteorite samples. It has, however, been recently shown that a stepwise decomposition of such solutions as hydrogen peroxide and ammonium persulphate may give displaced ratios of the two isotopes. It is known also that distillation effects a fractionation of the two isotopes and fractional diffusion.

After the hydrogen isotopes, the oxygen isotopes will probably be the most useful for settling problems of reaction mechanism. An illustration of their use in this direction has been furnished during the present year. It has been shown that the isotope O^{18} can be used as an indicator revealing that in the alkaline hydrolysis of an ester $RCOOR^1$, such as amyl acetate, it is the acid-oxygen bond of the ester which is split giving RCO and OR^1 as the fragments to react with OH and H respectively.

Lithium Isotopes. — Separation of the two isotopes of lithium, masses 6 and 7, has been achieved by use of the mass spectrograph principle. Quantities of the order of the one hundred millionth of a gram have been obtained and the essential freedom of each from the other isotope was demonstrated by observing the characteristic behavior of the two isotopes under proton and deuton bombardment.

FREE RADICALS IN CHEMICAL REACTIONS

An important development in our knowledge of mechanism in decomposition has occurred during the present year. For several years F. O. Rice has directed attention to the possibility that the thermal decomposition of organic compounds might occur *via* the production of molecular fragments or free radicals which might then undergo a chain or sequence of reactions in at least one stage of which a radical is regenerated. Such chain reactions have been familiar since the work of Bodenstein in 1913 on the combination of hydrogen and chlorine under the influence of light. It has been assumed, however, for several years, that many thermal decompositions, involving absorption of heat, were unimolecular reactions, that is the process occurred through the activation of a molecule by collision, which active molecule, after a greater or less interval of time, was either deactivated by collision or decomposed to form the observed products. At high concentration of reactant this mechanism would give a rate of reaction proportional to the concentration. Now Rice and Herzfeld have demonstrated that even though a chain or sequence of reactions occur as postulated by Rice, the rate of reaction may still be proportional to the concentration or unimolecular in nature. In other words, apparent unimolecular reactions may be chain reactions.

Stimulated by this suggestion, Leermakers has conclusively shown that the photo-decomposition of acetaldehyde and of several ethers are certainly chain reactions in the temperature range where thermal decomposition is just beginning. Further Allen and Sickman have confirmed these conclusions by initiating the thermal decomposition of acetaldehyde below the usual decomposition temperatures by introducing free methyl radicals into the reaction system. This work shows decisively that these supposed unimolecular decompositions are in reality chain reactions the length of which chain may be several hundred steps. This discovery reopens once more a whole field of chemical kinetics.

The importance of molecular fragments, atoms or free radicals in all forms of chain reactions continues to be emphasized by studies of thermal explosive reactions and similar reactions in which light energy initiates a chain sequence. The finer points of such reactions are now receiving close study. Melville has compared the reaction between hydrogen and oxygen with that between hydrogen and nitrous oxide, both thermal and photochemical. He shows that, dependent on the conditions, chains may end by recombination of hydrogen atoms on the wall or in the body of the gas. Also, the divergencies can be accounted for on the basis of varying efficiencies of reaction processes involving atoms or radicals and other species. Similar conclusions are reached by Geib and Harteck on the basis of studies of oxidation reactions of carbon monoxide and of hydrocarbons initiated by hydrogen atoms. We are forced to conclude that while reactions involving atoms are much more rapid than those between molecules they do not occur at every collision but require definite energies of activation for reaction to occur.

A comprehensive discussion of the state of knowledge as to free radicals was conducted by the Faraday Society in 1933 and published in January of this year. The preceding paragraphs represent additions to the volume of knowledge presented at the Society's symposium.

MUTUAL PROBLEMS OF PHYSICAL AND ORGANIC CHEMISTRY

Two conferences during the current year by the German Bunsen Gesellschaft and by the American Chemical Society have dealt with the rôle of physico-chemical research in support of organic chemistry. A discussion on ''Dipole Moments'' conducted by the Faraday Society deals in detail with one phase of this general problem. As pointed out by Mark in a comprehensive summary, x-ray spectra of solids and gases, electron diffraction methods, absorption spectra, Raman spectra, specific heats, electric moments and polarisability measurements are now all invoked to decide questions of spatial arrangements in organic molecules with quantitative deductions resulting from such methods as to interatomic distances and valence angles of the molecules. An enormous body of data has now been thus accumulated. Photo-chemistry may reveal, as we have indicated already, mechanisms of reaction and such studies are in reality still in their infancy. For the high molecular weight organic compounds such as the celluloses, proteins, albumens and naturally occurring biochemical entities, the use of physical methods of attack, viscosity relations, rates of sedimentation, absorption spectra and the like are indispensable aids. One need only cite the use of the spectrograph in vitamin studies as an example in point. In all of these fields of work, intensive developments are occurring in numerous laboratories scattered throughout the world. The record of progress is, however, one of details rather than a noteworthy break with traditional procedure and a new step forward.

XXI. CHEMISTRY AND PHYSICS

ORGANIC CHEMISTRY

By Charles D. Hurd

Professor, Northwestern University

DEUTERIUM COMPOUNDS

Properties.—With the discovery of deuterium (the heavy isotope of hydrogen) in 1933 it was to be expected that many laboratories would start to prepare organic compounds of it. Such has proven to be the case, but it is of interest to record that the "heavy" compounds possess practically the same physical and identically the same chemical properties as the original compounds. A different result, however, could hardly have been anticipated.

Nomenclature. — The American Chemical Society Committee on Nomenclature (E. J. Crane, Chairman) has taken a commendable stand in providing in advance a suitable nomenclature for such compounds, one which is perfectly explicit yet one which deviates from the established names as little as possible. The tentatively adopted plan is to indicate the presence of each deuterium atom by an attached letter *d*. (The symbol for deuterium is still unsettled but it has been narrowed down to H*d* or D.) Thus, the formulas for the two possible forms of "heavy" acetic acid would be CH_3COOHd and CH_2Hd-COOH. Their names, respectively, are acetic acid-*d* and acetic-*d* acid. The former has been synthesized by G. N. Lewis and Schutz by interaction of hydrogen-*d* chloride and silver acetate. Its melting point of 13°C is very close to the 16° for ordinary acetic acid. Whitmore and collaborators have synthesized neopentane-*d*. It melts at -22° as compared to -21° for neopentane (tetramethylmethane) itself. The preparation was effected by the reaction of water-d_2 (heavy water) on neopentylmagnesium chloride.

COLOR OF FERRIC COMPLEXES

Phenol and ferric chloride have long been known to produce an intense coloration when mixed but the cause of the color has not been explained. Brode, using a spectrophotometer, has found that the absorption spectra of the colors produced with about fifty different phenols and naphthols were identical in shape. From this he concluded that the ferric iron—phenol colors were due to the formation of complex coördinated ions of the type $Fe(OAr)_6^{---}$. The color of such a complex ion would be due to the selective absorption of light by the iron atom. The effect of the various phenols would be merely to change somewhat the energy state of the iron atom and, hence, to modify the position of the absorption curve but not its shape. The intensely red-colored "ferric thiocyanate" is explained similarly by the complex ion $Fe(CNS)_6^{---}$.

ORGANIC COMPOUNDS OF INDIUM

Indium occurs in group III of the periodic table of elements along with boron, aluminum, scandium, gallium and thallium. Until this year it was the only member of this group to have no methyl derivatives. Dennis supplied this deficiency by preparing trimethylindium from indium and dimethylemercury. The substance is a solid melting at 89°C which must be protected from air or water. Water causes the evolution of methane. Air decomposes it to give ethane and a methylindium oxide.

RADICALS IN ORGANIC REACTIONS

Thermal Decompositions.—The past few years have witnessed a remarkable development in understanding what goes on "behind the scenes" in organic reactions, especially in thermal decompositions. In such pyrolytic processes it seems that there is an initial dissociation of the molecule into two unstable parts or radicals. The nature of the subsequent reaction products, therefore, depends on the fate of these radicals. Briefly stated, they generally do one of two things: decompose further into an unsaturated compound and a smaller radical or react with the surrounding molecules of the original substance. Such developments have characterized the work of Rice, Leermakers, Sickman, Frey, Cramer, Hurd, Kistiakowsky and others.

Strength of Bonds.—In such a reaction mechanism it is a matter of importance to know the strength of bonds between atoms, because it is evident that the initial split should come at the point of greatest weakness in the molecule. Thus, Rice has approximated the strength of the bond which breaks by finding the "activation energy" involved in the pyrolysis. The activation energy plus the average energy of the molecules at the temperature of decomposition gives a satisfactory measure of the strength of the linkage which breaks. Experimentally, this activation energy was determined by passing the vapors of the compound rapidly through an evacuated tube heated to different measured temperatures and noting the time required to remove a standard metallic mirror of antimony by its combination with the reactive radical and subsequent volatilization. Since this time of removal depends on the concentration of radicals at that point it is also related to the rate of dissociation of the original compound. If, therefore, the experiment is performed at two or more temperatures, the activation energy may be calculated.

As would be expected there was found to be considerable variation in the strength of various bonds. That between carbon and oxygen (in methyl ether) was stronger than the one between carbon and nitrogen (in trimethylamine). The former was 81,100 calories and the latter 50,800. The carbon-to-carbon bonds in ethane, propane and heptane respectively were 79,500, 71,500 and 63,200 calories. This demonstrates a definite lessening in stability as one passes from the lower to the higher members of the family of saturated hydrocarbons. Kistiakowsky observed a similar diminution of activation energies in the pyrolysis of tertiary butyl and tertiary amyl alcohols. The former 4-carbon alcohol gave 65,500 calories whereas the latter 5-carbon alcohol gave 60,000. Generally, activation energies of 50,000-80,000 calories may be expected for such decompositions in the aliphatic series.

Subsequent reactions of the radicals proceed in the direction of lower activation energies rather than higher. Then, the methyl radical (CH_3), once formed, is prevented from changing into a methylene radical (CH_2) because at least 100,000 calories would be required. Other radicals such as ethyl, propyl, etc., may decompose readily enough. For example, only 49,000 calories is required to change ethyl (C_2H_5) into ethylene (C_2H_4) and atomic hydrogen (H). Still smaller energies are required for higher radicals. Even smaller energies are required for the radicals to appropriate hydrogen from neighboring molecules on collision with them. Thus, the reaction: methyl + ethane (C_2H_6) to produce methane (CH_4) + ethyl requires only 20,000 calories. A similar energy requirement is involved in the change of atomic into molecular hydrogen (H to H_2) by collision with ethane. New radicals are set up by these collisions and a chain of reactions is inaugurated.

Reactions Induced by Radicals.—Such a reaction mechanism carries the implication that pyrolyses could be induced at temperatures considerably below the ordinary decomposition temperature if only some supply of radicals were present. This implication was substantiated by the work of Allen and Sickman on acetaldehyde. It happens that acetaldehyde is stable at 300° whereas azomethane gives rise to methyl radicals at that temperature. A mixture of acetaldehyde and azomethane was heated at 300° with the result that a normal type of decomposition of the aldehyde was obtained. Hence, the methyl radicals must have initiated the breakdown of the acetaldehyde. Leermakers demonstrated that radicals were produced also during the photolysis of acetaldehyde. These methods of approach are being applied to the problems of combustion, engine detonation, antiknock fuels, etc., and tangible, practical results have already been obtained.

CARBOHYDRATES

Sorbitol.—A convenient source for the rare sugar alcohol sorbitol has been found by Strain, namely, Toyon or California Christmas berries. The sorbitol is isolated by extraction with alcohol in a yield of 2-3% by weight of the berries.

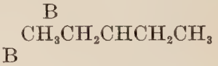
Aldehyde Forms of Sugars.—Wolfrom and co-workers have extended their syntheses of true aldehyde forms of sugars by making the open chain forms of fucose, galactose and fructose acetates. In the original plan, the aldehyde group (-CHO) was protected by changing it into a mercaptal derivative (-CH(SR)$_2$), finally removing the mercaptal group to restore the aldehyde. Wolfrom has developed another plan as follows: convert the sugar into its oxime, acetylate, and then regenerate the aldehyde group by reacting the oxime with nitrous acid.

Studies in Liquid Ammonia.—A new technic in carbohydrate study developed by Muskat has been to react sugars in liquid ammonia with a solution of potassium in liquid ammonia. In this way, hydrogen atoms are displaced by potassium and the various CHOH groups become CHOK groups. The interesting feature is that the potassium (K) atom, once introduced, may be replaced by a variety of substituents. One such is methyl. Thus, the CHOK portion is changed to $CHOCH_3$ by interaction with methyl iodide. The method provides for the introduction not only of alkyl groups but also of acyl substituents. Also, groupings containing such inorganic elements as phosphorus, arsenic, sulfur and mercury have been attached similarly.

BARBITURIC ACIDS

Some years ago a hypnotic named "pentobarbital sodium" or "nembutal" was introduced in medicine and surgery as a sedative. It has found extensive application particularly because its sedative and antispasmodic action is rapid of onset and of marked intensity, and yet passes away with comparative rapidity.

Like most barbiturates, it is made by condensing the appropriate malonic ester with urea. The two groups which must be introduced into the malonic ester prior to this reaction are ethyl and pentyl. The structure of the pentyl group was in doubt until his year in spite of definite knowledge of the component parts. It was known, however, that there were but two possibilities to consider. If the barbituric portion of the molecule is represented as B, these two structures become



$$CH_3\underset{B}{CH}CH_2CH_2CH_3 \text{ and } CH_3CH_2\underset{B}{CH}CH_2CH_3$$

In words, the substitution of B was either at the second or the third carbon atom of pentane. Tabern and Volwiler have succeeded at last in synthesizing both of these substances and showed that the former is pentobarbital. Kleiderer and Shonle prepared these materials also and resolved the pentobarbital into its dextro and levo optical isomers. In pharmacological tests the differences noted between the three forms (dextro, levo and the commercial mixture) were slight. This result was not predictable for in many cases it has been established that the levo form is far more active physiologically than the dextro, or vice versa. In adrenaline, for example, the levo form is by far the more potent.

Shonle and Waldo studied other barbiturates which contained unsaturated groups (allyl, propargyl, pentenyl and others) but found that these compounds were quite inferior as hypnotics. Other work on barbiturates has been performed by Skinner on β-hydroxyethyl analogs and by Loubriel on the β-hydroxypropyl compounds.

NEW SYNTHESES

Ionene and Irene.—Bogert and associates have proven that ionene, prepared by distillation of either α- or β-ionone with a trace of iodine, is 1, 1,6-trimethyltetralin. Evidence of its naphthalene-like structure was its smooth nitration and sulfonation. The structure was proven definitely by its synthesis from *m*-xylene. By an appropriate sequence of steps the $CH_3C_6H_4CH_3$ was changed into $CH_3C_6H_4CH_2CH_2CH_2Br$. Condensation of this bromide with acetone by the Grignard method yielded a tertiary alcohol which changed to ionene by an ingenious cyclodehydration. By similar reasoning, Bogert established that irene is 1,1,2,6-tetramethyltetralin. Irene is the name given to the hydrocarbon obtained by dehydration of the orris perfume irone.

Vanillin.—Mottern has developed a new synthesis of vanillin starting with guaiacol. The guaiacol was acetylated and rearranged by aluminum chloride (Fries reaction) to 4-acetylguaiacol. Oxidation of the acetyl group ($-COCH_3$) to a keto acid group ($-COCOOH$) and pyrolysis of the latter (giving $-CHO$) completed the synthesis.

Higher Dibasic Acids.—A practical synthesis of dibasic acids containing 16-18 carbon atoms between the two acid groups has been reported by Schwenk and Priewe. The starting material was *m*-cresyl adipate and the subsequent steps involved the Fries reaction, reduction, hydrogenation and oxidation. This is of interest to the perfume industry for salts of such acids pyrolyze into a form of musk.

Oleic Acid.—Boord's general olefin synthesis has been used this past year by Noller to effect for the first time a synthesis of oleic acid which does not permit of structural isomers. Of the 18 carbon atoms required in the oleic acid skeleton, nine were furnished from 9-chlorononanal, eight from octylmagnesium bromide and the other from sodium cyanide.

Other Work.—That the above selections represent but a fraction of the vast amount of organic research in America must be apparent when it is realized that over 500 research articles on organic chemistry appeared in the *Journal of the Americal Chemical Society* alone. Inspection of titles of these articles reveals the most varied types of investigation which are being performed. Such fields as alkaloids, dyes, organic arsenicals, rearrangements, catalytic hydrogenations, terpenes and scores of others are represented. It may be mentioned finally that the American Chemical Society prize, given annually to a chemist under 31 years of age, was awarded this year to Dr. C. F. Koelsch for his achievements in organic research, particularly for his synthesis of a cyclic alpha diketone.

AGRICULTURAL CHEMISTRY

By W. W. Skinner

Bureau of Chemistry and Soils, Department of Agriculture

CARBOHYDRATES

Sugars.—As a result of several years of work on beet sugar, Keane, Ambler and Byall of the U. S. Bureau of Chemistry and Soils have shown that it is possible to improve and make practically uniform the quality of domestic beet sugars, so that they may compete with refined imported sugars in the manufacture of bottled beverages and high grade confectionery, and be used for other purposes for which especially pure sugar of uniform quality is essential. These research results, when applied by the domestic sugar industry, should lead to a reduction or complete elimination of the price differential against beet sugar and increase the income of farmers in the sugar beet belt where the production of sugar is on an essentially cooperative basis under existing contracts between sugar beet growers and manufacturers.

Starch and Dextrin.—The process for producing starch from sweet potatoes, developed by Thurber and others in the Bureau of Chemistry and Soils and reported last year, has been placed in commercial operation in a factory at Laurel, Mississippi, which was built with funds from the Federal Emergency Relief Administration. This factory is capable of producing 10 tons of starch per 24-hour day. Dextrin derived from sweet potato starch has been tested by the Bureau of Engraving and Printing and found to be suited for use as an adhesive for postage stamps. With this and other promising outlets for the starch, a new source of income may be made available to the farmers of the South.

Honey.—A new method of processing extracted honey preliminary to bottling, known as the ''quick'' or ''flash'' process, was perfected by Lothrop and Paine of the Bureau of Chemistry and Soils. The important features of this process are the full retention of aroma and flavor, greatly improving clarity and appearance, and elimination of surface scum after bottling.

Cellulose.—Sisson and Clark of the University of Illinois studied the *x*-ray method for the quantitative comparison of crystallite orientation in cellulose fibers from various sources. Ritter and Kurth described a rapid method, developed in the Forest Products Laboratory, for isolating in solid form the entire carbohydrate content of wood which has been extracted with alcohol-benzene solvent and with hot water. Sanders and Cameron of the University of North Carolina showed that cellulose from cotton stalks and cusps is chemically the same substance as the cellulose of cotton lint and various woods and that it will yield the same products when treated with chemical reagents. Ritter and Stillwell of the Forest Products Laboratory reported on the rate of formation of the crystalline structure of wood fiber. Lewis and Browning, and Bumps, studied methods for the determination of alpha-cellulose.

NUTRITION

Proteins and Amino Acids.—In a study of the cystine, tryptophane and tyrosine content of the soybean, Csonka and Jones found that the percentage of the amino acids varies with different varieties. They suggested that varieties be selected for planting which produce more and better quality protein from the nutritional standpoint. Jones and Gersdorff separated the cleavage products of casein, after one hour's digestion with pepsin, into three fractions which showed striking differences in amino acid composition and phosphorous content. These workers also showed that successive dissolution of casein in dilute sodium hydroxide solution and precipitated by acid causes pronounced change in the cystine content. After five precipitations the product contained only one-tenth as much cystine as was present in the untreated casein. In view of their results so-called purified casein cannot be used safely in chemical work and feeding experiments. Vigneaud, Dyer and Harmar confirmed the chemical structure of homocystine, the next higher homologue of cystine, and showed that homocystine, when added to a cystine-deficient diet, had growth promoting properties equal to those of cystine. They also showed the relationship between homocystine and methianone in intermediary metabolism. Rose and Womrack have reported that three of the known decomposition products of protein which previously had not been shown to be nutritionally essential, must be added to the list of indispensable food elements for building proteins. These are leucine, isoleucine, and phenylalamine. Heretofore the list included only four out of about twenty known amino acids. Beadles and his associates showed the effect of the ripening process of cheese on the nutritive value of the protein of milk curd. Palmer, reporting on the preparation of crystalline globulin from the albumin fraction of cow's milk, showed that sixty per cent of the protein in what had previously been considered albumin really consists of a crystallizable globulin. Calvey and Titus showed that the composition of the proteins of hen's egg is not affected by the character of the diet of the hen. Dairy rations of alfalfa hay and grain often have a rather large proportion of calcium as compared with phosphorus. Experiments reported by Turner and associates indicated that calcium and phosphorus balances of cows fed on such rations may sometimes be rendered more positive by adding di-sodium or mono-sodium orthophosphate to the feed. Turk, Morrison and Maynard found that alfalfa hay is probably not deficient in quality of protein for sheep when fed in a balanced ration.

Vitamins.—From the results of a study on the antirachitic efficacy of irradiated cholesterol, Waddell concluded that the provitamin constituent of cholesterol is a substance different from ergosterol, which is contrary to the widely held belief that ergosterol is the main precursor of vitamin D activity in the body. Ingraham and Bauman of the University of Wisconsin reported that certain bacteria produced within their bodies nearly twice as much carotene as is found in carrots themselves. Carotene is a widely distributed plant pigment which is believed to be the precursor of vitamin A in animals. Williams and Eddy developed a method for obtaining pure vitamin B in large quantities.

ENZYMES

Kunitz and Northrup of the Rockefeller Institute laboratories crystallized a new protein from the pancreas which upon digestion yields trypsin. They also obtained another ferment in the form of protein crystals which has a particularly great coagulating power upon milk, and which is probably a constituent of the ordinary pancreatic extracts. The two substances were named chymotrypinogen and chymotrypsin respectively. Northrup and associates also made a series of studies on trypsin and pepsin which tend to show that the ferments themselves are of protein nature. From a mathematical study of the evaluation of enzyme constants, Lineweaver and Burk of the Bureau of Chemistry and Soils suggested a simplification which is of general application and great importance. Burk, Lineweaver and Horner also studied the enzyme system of nitrogen fixation in *Azotobacter*. Sorber studied the effect of ethylene gas on the respiratory processes of plants, particularly as applied in California to stimulate the ripening of walnuts and the loosening of the hulls. Balls and Hale of the Bureau of Chemistry and Soils showed that the darkening of peeled apples is prevented by substances which inhibit the action of peroxidase, particularly those containing —SH groups. In a study of antitrypsin in eggs, Balls and Swenson showed a possible connection between antitrypsin and protein synthesis in the cell. These workers also showed that trypsin is the cause of certain types of spoilage in eggs. Calvery made studies on the enzyme breakdown of egg albumin which are of fundamental importance to our knowledge of proteins and their digestion. Sherman, Caldwell and Doebbling made further studies on malt amylase and described the properties and method of obtaining one of the purest enzyme preparations ever made.

FOOD RESEARCH

Cereal Products.—In a study of the biological properties of dough and bread from separated grain Natalie Kozmin showed that bread of high quality can be made from the flour of sprouted wheat by acidifying the dough to a pH of 4.3 to 4.5, thus confirming the views of Olsen and Fine concerning the inhibition of the activity of diastase in a sour medium at high temperature. Digestibility studies on bread (in vitro) by Graeves and Morgan indicated that the higher the temperature to which the dough is exposed during baking, the more slowly is the bread digested. It was found that the crust of bread is more slowly digested than the crumb. Read showed that irradiation of bread with ultraviolet light, even through a transparent cellulose wrapper, is an effective means for destroying mold spores on the surface of the bread.

Rancidity.—The effect of different wave-lengths of light upon the development of rancidity in oil-bearing foods was studied by Coe and LeClerc who showed that green light of wavelengths delimited by 4,900 and 5,800 Ångström units promotes rancidity the least and that when such foods have been exposed only to this shade of green, the ordinary chemical tests for rancidity (*e. g.*, the peroxidase values) are not reliable. The blue end of the spectrum was found to influence the formation of peroxides and the development of rancidity to a greater degree than did the red end.

Army, Taub and Blythe showed that green containers having the same light transmission as that recommended by Coe are effective for preserving various medicaments of organic origin.

Toxic Materials in Foods.—The actual and proposed use of certain fluorine and selenium compounds as insecticides on fruits and vegetables, and the presence of selenium in some soils has promoted the study of toxic effects from small quantities of such materials which may remain in edible produce. H. G. Knight, Chief of the Bureau of Chemistry and Soils, pointed out that stock is poisoned by grazing over soils containing traces of selenium and suggested that selenium-bearing soils, mostly scattered patches in the semi-arid wheat growing section of the country be withdrawn from agriculture because selenium contaminates the grain grown on them. Hurd-Karrer of the Bureau of Plant Industry showed that selenium injury to wheat plants can be inhibited by the addition of excess sulphur, either in the form of sulphates, or as elemental sulphur. Schour and Smith of the University of Arizona studied acute and chronic poisoning from fluorine compounds as indicated by the histologic changes in the enamel and dentine of incisor teeth in rats. An exhaustive study of methods for the determination of lead in food was made by the Association of Official Agricultural Chemists by Wichman and co-workers.

Fruits and Vegetables.—Klotz of the University of California found that nitrogen trichloride has promised to be useful in combating decay-causing fungi upon citrus fruits in storage rooms or in loaded cars of packed fruits. Very small concentrations of this gas reduced damage from decay to one-half or one-fourth of the usual losses. Kolman and Sanborn of the National Canners Association found that normal access of oxygen does not destroy vitamin C in fresh vegetables, whereas the shutting out of air permits the plant's own enymzes, as well as those of bacteria and molds, to carry on anaerobic respiration, producing alcohols and other compounds that give the foods flat and disagreeable flavors. Miller and Robins reported that cooked green immature soybeans, as compared with most vegetables, contained unusually large amounts of protein, fat, calcium, phosphorous and iron; also that they were a very good source of vitamins A, B and G, but a poor source of vitamin C. A new process for preserving orange juice by deaëration and flash pasteurization was worked out by von Loesecke, Mottern and Pulley. Juice prepared by this process still had a satisfactory aroma and taste after having been stored for ten months at a moderately cool temperature. Nelson and Mottern reported on components of orange, grapefruit and tangerine oils. A newly discovered compound, which he named tangeretin, was isolated from the peel of tangerines by Nelson. It is a pentamethyl flavoronol. A number of investigators, including Mottern, von Loesecke, Cruess, and Joslyn, reported on the possibilities of producing wines and other alcoholic beverages from citrus fruits.

Plant Pigments and Surface Coatings.—Mackinney studied the crystal structure of carotenoids by determining the interplaner spacings in Ängström units for carotene, xanthophyll-luthein and lycopene. Matlack and Sando showed that the same compound, lycopene, is responsible for the red color of both red and purple American-grown tomatoes, as well as of the Italian-grown tomatoes. They also set forth certain possibilities which may account for the color changes during the processing and storage of tomato products. Hilbert and Jansen applied liquid air temperatures in studying the absorption spectra of carotenoid pigments. Brink showed a possible relation between anthocyanin pigment in corn and yield of ears. Cohn and St. John reported a study of the formation and properties of lead ursolate and pointed out that the reaction of lead arsenate with ursolic acid in the waxy coating of fruits might be partly responsible for the difficulty in removing spray residue. Markley and Sando reported the isolation of ursolic acid from cranberries. Bergsteinsson and Noller reported the isolation of a new crystalline sapogenin, which they named echinocystic acid, from the roots of a species of gourd found in California. Analyses indicated that it is a triterpenoid. Noller studied the structure of the new compound by dehydrogenation with selenium

LIGNIN

Phillips, Goss and Brown of the Bureau of Chemistry and Soils found that waste sulphite liquor, a by-product high in lignin, can be converted into a product containing about 10 per cent of organic nitrogen by heating with ammonia under pressure. The product was found to have considerable value as a fertilizer. A study of the effects of lignin in the microbial decomposition of crop wastes, by Levine and associates, yielded results which throw doubt on previous reports that microbial decomposition and possibly gasification of lignin under anaerobic conditions is as rapid as that of cellulose or pentosan.

INDUSTRIAL FERMENTATIONS

Through their report on gluconic acid production of submerged mold growths under increased air pressure, May and co-workers in the Bureau of Chemistry and Soils, demonstrated the possibility of a wide use of submerged mold growths instead of surface growths in mycological processes. They also devised apparatus for accurately controlling the composition and flow of mixtures of gases through culture solutions. This equipment has attracted considerable attention and promises to have a wide application in general biological work. Levine of Iowa State College and co-workers in the Agricultural By-Products Laboratory of the Bureau of Chemistry and Soils studied the products and fermentation characteristics of the attack by *Clostridium butylicum* on waste glucose, gluten, and other by-products of the corn sugar refining industry. They showed that with mixtures of corn steep water and malt sprouts or corn gluten as sources of nitrogen, glucose may be fermented in 4 per cent solution with the production of 20 to 25 per cent of butyl alcohol and from 4 to 9 per cent of isopropyl alcohol.

OILS AND FATS

Kurtz, Jamieson and Holm, reporting on the fatty acids in the lecithin-cephalin fraction of the phospholipids from cow's milk, showed that a considerable proportion of the phospholipid molecules contains only unsaturated acids. In contrast to butterfat, this fraction of the milk phospholipids, believed to be possible intermediaries in the synthesis of milk fat, contains none of the lower fatty acids, and palmitic acid, one of the most abundant in butter fat, is entirely absent. Bosworth and Brown reported on the isolation and identification of some hitherto unreported fatty acids in butter fat. Crowder and Anderson contributed to the chemistry of Lactobacillus acidophilus information on the neutral fat portion of the crude lipids. Bengis and Anderson determined the composition of the oil from coffee beans. Jamieson and McKinney described the chemical and physical characteristics of edible oils from Patana palm nut kernels and the seed of the passion fruit.

NAVAL STORES

Palkin and Clark prepared special rosins from separate fractions of filtered pine gum which exhibited marked differences in physical and chemical properties. These rosins were characterized by much greater clarity and brilliance than ordinary rosins. Some were very pale, running seven or more grades on the French scale above X, the highest grade on the American scale. LaLande studied the products of laevoabietic acid from American wood rosin when heated for various periods at temperatures of from 175° to 385° C. At the lower temperatures anhydride formation was the predominating reaction. At higher temperatures two different modes of decarboxylation were observed. Isomerization of the acid was evidenced by the change in rotatory power. Smith and Holman showed that under certain specified conditions gum turpentine can be stored for four years or more in large metal tanks without serious changes taking place; also that addition of certain chemical substances, such as quick lime and acid sodium sulphite, in solid form, retards changes in turpentine during storage.

HIDES AND LEATHER

Frey and Clarke of the Bureau of Chemistry and Soils and Highberger and Moore of the Tanner's Research Laboratory studied the causes of greasy hides and kidney grease stains in leather. Blank demonstrated that paranitrophenol is highly effective in preventing the molding of wet chrome-tanned leather. Stuart and Swenson reported new morphological and physiological observations on salt-tolerant bacteria in connection with the problem of salt-stain on hides. Staisny presented a comprehensive and clarifying summary of present knowledge on the chemistry of chrome tanning.

NEW BOOKS

Food-borne Infections and Intoxications, by Tanner; *Laboratory Examination of Wines and Other Fermented Fruit Products,* by Cruess, Joslyn and Saywell; *A Manual of Biochemistry,* by McClendon; *A Textbook of Biochemistry,* by Harrow, Morse and Sherwin; *Plant Biochemistry,* by Tottingham; *The Chemistry of the Hormones,* by Harrow and Sherwin; *Colloid Chemistry,* by Thomas; and *The Lyophilic Colloids,* by Fisher, Hooker, and Thomas.

ELECTROCHEMISTRY

By Colin G. Fink

Professor, Columbia University

THE ELECTRIC FURNACE AND ITS PRODUCTS

The outstanding new product of the electric furnace is the very hard boron carbide, B_4C, an abrasive that has remarkable wear-resistance. The product is the result of years of research carried out by R. R. Ridgeway of the Norton Company.

The now universally used, cemented tungsten carbide serving as a high-speed cutting tool and a substitute for diamond in drills experienced further improvements. The General Electric Company brought out a new type consisting of cemented tungsten carbide impregnated with small diamonds.

Attention was focussed during the year on the electric firing of china and other ceramic ware. Lack of suitable resistor material in the past accounts for the slow progress made. With the new electric resistors, temperatures are attained that will fire the porcelain and not merely "toast" it.

FUSED ELECTROLYTES

Barium is one of the most important metals in the vacuum tube industry. Its value lies primarily in the property of emitting electrons copiously at relatively low temperatures. Utilizing this distinctive property, D. W. Randolph of the A. C. Spark Plug Company has incorporated barium into the nickel terminal of the spark plug, resulting in a much more uniform and more quietly operating spark. Similarly M. A. Baernstein of the National Pigments and Chemical Company has found that the introduction of barium compounds into the electric arc furnace results in a very uniform operation of the arc.

Metallic magnesium reached the low price of 25c. a lb. as against $5.00 a lb. in 1918. It is now cheaper than copper and aluminum, volume for volume. The main consumption of magnesium metal today is for castings and extruded parts for airplane, automobile and railroad equipment parts. Formerly the chief use was in flash-lights and flares. Aluminum is the "photoflash" metal of today.

Aluminum.—The anodic treatment and dyeing of aluminum articles was developed on a broad commercial basis during the year. Of special interest is the complete conquest of the aluminum mirror over the silver mirror for our telescopes. Patents were granted on the new Fink process for aluminum-coating iron, steel and other metals. The product is exceptionally resistant to corrosion and to high temperatures.

Sodium Metal.—The output of sodium metal in the United States exceeded that of the world's nickel output, volume for volume. The year marks the first large-scale highway lighting installations with the new sodium arc lamp. Into this lamp have been incorporated the barium oxide-coated (cathode) filament of the vacuum tube, and a little of the gas of the neon tube. The barium ionizes the neon which establishes the discharge path through the tube, causing the sodium metal to vaporize and start the sodium arc. This new lamp and its close relative, the new mercury arc lamp, operate at an efficiency two and three times that of the incandescent tungsten lamp which they threaten to displace in most of our highway lighting.

AQUEOUS ELECTROLYTES

Deuterium.—The center of interest among electrolytic products continued to be heavy hydrogen or "deuterium," which is its accepted name. Its discoverer, H. C. Urey of Columbia University, was awarded the Nobel Prize in Chemistry.

New Sodium Metal Process.—Patents were issued to S. A. Moulton of Los Angeles for his new method of making sodium metal. A water solution of sodium carbonate is electrolyzed with a mercury cathode. The amalgam produced is then fractionated into mercury and sodium metal. The process has been successfully tried out on a commercial scale.

Electrodepositing of Alloys. — George B. Pegram of Columbia University electrolytically recovered polonium from its solutions. The Bell Telephone Laboratories succeeded in electrodepositing magnetic alloys of nickel, iron and cobalt from sulfate solutions containing magnesium sulfate.

Long Lengths of Copper Sheet. — Patents were granted the Anaconda Copper Mining Company for the electrolytic production of long lengths of copper sheet. The pure, smooth product, which can be made paper-thin or relatively thick, has already found widely diversified applications.

Chromium Plating. — Charles H. Eldridge of Detroit introduced an improved anode to the chromium plating industry. The anode consists of 93 per cent lead and 7 per cent tin. Black chromium plating—similar to black nickel—is commercially produced by the simple expediency of ten-folding the usual current density used with the standard Fink bath.

Electroplating Indium. — Daniel Gray of Sherrill, N. Y., described his method of electroplating indium, a by-product of the zinc industry. A silver-white deposit is obtained of high reflectivity and resistance to sulfur attack.

Other Processes.—J. I. Hall and A. E. Koenig of the Montana School of Mines electroplated germanium from alkaline solutions, and Fink and Deren of Columbia University discovered methods for electrodepositing rhenium on brass, steel and other metals. Rhenium plate is exceptionally free from pin holes and highly resistant to hydrochloric acid.

ELECTRO-ORGANIC CHEMISTRY

R. D. Blue and F. C. Mathers of Indiana University worked out methods for the electrodeposition of aluminum from organic chemical solutions. The plates are smooth and adherent.

R. H. McKee and J. R. Heard, Jr., of Columbia University found that concentrated aqueous solutions of certain sodium salts of organic compounds are ideal solvents for other organic compounds—especially for electrolytic oxidations and reductions. The sodium salts of aromatic sulfonates are particularly suitable. Their aqueous solutions are non-volatile, and non-inflammable, and are good conductors.

New interest has been aroused in the electrochemistry of life processes, a field that is bound to be a most fertile one for intensive research. Dr. H. A. Abramson of Cornell Medical College (New York City) found that a definite relation existed between the potential and charge of bacteria and their agglutination.

The General Electric Company has introduced the use of chlorinated diphenyl as a dielectric in place of the common transformer oil. A marked improvement in transformer performance has resulted.

INDUSTRIAL CHEMISTRY AND CHEMICAL ENGINEERING

By Sidney D. Kirkpatrick

Editor, *Chemical & Metallurgical Engineering*

DECENTRALIZATION OF INDUSTRY

Just prior to the beginning of the depression, certain powerful economic forces were gradually bringing about a decentralization of the chemical industry. Competitive bidding for labor in the congested industrial centers and the rising cost of transportation and distribution had made it desirable to move plants nearer to markets or sources of raw materials. After several years of relative inactivity, due to the involuntary moratorium on new construction, this movement was resumed in 1934 with a marked migration of important plants to the south and southwest. It is estimated that the program in its entirety will involve more than $100,000,000 of new plant construction, of which almost a third is represented by six new chemical plants that dot the southern coastline from Wilmington, N. C. around the Gulf Coast to Corpus Christi, Tex.

That this movement resulted in a resumption of chemical engineering activity is perhaps self-evident. New plants, utilizing new processes and new equipment, called forth the results of laboratory research and engineering developments. The work of the chemical engineer in translating these processes into successful commercial production is well illustrated by some of the new projects that attracted popular attention during 1934.

BROMINE FROM THE SEA

Ever since Midgley and his associates, working in the General Motors research laboratories, discovered the anti-knock properties of tetraethyl lead when added to ordinary motor fuel, it has been recognized that the widest possible application of this development dependent upon an inexhaustible supply not of lead but of bromine. This element in the form of ethylene dibromide serves as a carrier for the lead compound which would otherwise deposit in the engine with deleterious effects. At first the supply of bromine was obtained from natural brines and bitterns in Michigan, California and Ohio, but, even though production was greatly increased, it became evident that a more abundant source was desirable. In 1924 the Ethyl Gasoline Corporation, in collaboration with the duPont Company, investigated the possibility of extracting bromine from sea water. A pilot plant was built on the Maryland shore and later a steamship (S.S. *Ethyl*) was equipped as a floating chemical factory. In April, 1925, the vessel was put to sea for a trial trip. It successfully produced some bromine in the form of tribromo-aniline but for a number of reasons the process was abandoned.

About the same time this problem was attacked from another direction by chemical engineers of the Dow Chemical Co., experienced bromine producers of Midland, Mich. After several years of patient research, they had the pleasure of reporting to the Ethyl Gasoline Corporation that the Dow process had been developed and refined to such a stage that it was now practical to apply it on a large scale to the recovery of bromine from sea water. The difficulties involved in such a process are apparent when one considers that the concentration of bromine in sea water is only 67 parts per million, or approximately one *ounce* of bromine in every 5 *tons* of sea water.

The Dow process consists of three steps, namely, oxidation with chlorine of the acidulated sea water, blowing the bromine out of the solution with air, and finally absorbing it in a soda-ash solution to produce a mixture of sodium bromide and sodium bromate. After the process had been demonstrated on a semi-commercial scale, the Ethyl-Dow Chemical Co. was formed, jointly owned by the two interested corporations. A unique plant, involving an investment of $3,500,000, was built on the narrow Cape Fear peninsula south of Wilmington, N. C. Every minutes of the day 26,000 gals. of sea water is pumped through the plant and its bromine recovered to produce approximately 500,000 lbs. of ethylene dibromide per month. The design, construction and operation of this plant, completed early in 1934 after less than six months of intensive effort, marks one of the outstanding achievements of American chemical engineering.

ATTRACTION OF BASIC INDUSTRIES FOR OTHERS

Perhaps the southern migration of chemical industry is best exemplified by the new alkali development in Texas and Louisiana which got under way late in 1934. It has long been recognized that the southwest offered certain natural attractions for an industry of this kind. The growth of petroleum and vegetable-oil refining, pulp and paper manufacture, and textile processing created a market for basic alkalis which were supplied from northern plants, uneconomically located to supply this territory. More important was the combination of raw materials and extremely cheap fuel—natural gas—at tidewater, thus providing low cost manufacture and water transportation.

The first plant to get into production was the jointly owned enterprise of the American Cyanamid Co. and the Pittsburgh Plate Glass Co. at Corpus Christi, Tex., known as the Southern Alkali Corp. This was formally opened in October, 1934. Mathieson Alkali Works started construction of a $7,000,000 plant at Lake Charles, La. in December, 1933, and it is expected that the plant will be in full operation by January, 1935. The third plant now under construction is that of the Solvay Process Co., largest of the alkali producers, which chose a site on the Mississippi River above Baton Rouge, La. With its completion approximately 300,000 to 350,000 tons of alkali will be added to the annual productive capacity of this industry which in normal times has shown an average increase of around 100,000 tons per year. It is significant, however, that there has been no substantial increase in alkali capacity in this country since 1930.

Other new southern chemical industries completed in 1934 include the plant of the Freeport Sulphur Co. at Lake Grade Ecaille, La., built under tremendous natural handicaps in the tidal marshland of the Mississippi River Delta. The International Paper Co., through its subsidiary, the Southern Kraft Corp., was also an active factor in the southern development. It converted one of its six southern mills, that at Moss Point, Miss., to a new process for bleaching kraft paper. It is generally believed that these developments are forerunners of other chemical industries that will eventually be attracted to the south by the same economic factors—cheap power, cheap labor, convenient transportation for raw materials and finished products, and a growing market.

PROBLEMS AND PROGRESS FROM PROHIBITION REPEAL

Repeal of prohibition meant something more than the revival of a once important but long quiescent process industry. Even before the constitutional amendment was approved, business men rushed in, in typically American fashion, and before the year was passed had built up an annual productive capacity estimated at 400,000,000 proof gallons of distilled liquor as compared with pre-prohibition consumption of only about 140,000,000 proof gallons. Furthermore, experience during the first months following repeal indicated that consumption of legal liquor was likely to be considerably below this figure even during the period of providing storage stocks for aging. It is already apparent that actual requirements are only 15 to 20 per cent of the present productive capacity, not all of which, of course, is of modern design and efficiency.

Some of this growth has undoubtedly been of an unhealthy, mushroom sort, and will probably not survive the competition ahead. On the other hand, certain of the new projects have been of a more substantial character, reflecting the many chemical engineering advances that have been made in related process industries during the past decade. One such plant is that of the Hiram Walker & Sons, Ltd., at Peoria, Ill., which when completed in April, 1934, constituted the world's largest distillery. Here 100,000 gallons of rye or bourbon whiskey may be produced in one 24-hour day from modern equipment under exacting chemical control. Other features of chemical engineering interest include the wide use of stainless and glass-lined steel and similar modern materials of construction, attention given to the economies of heat conservation and the inherent advantages of continuous operation.

ADVANCE IN PETROLEUM CHEMISTRY

The petroleum industry is unique in that it is both a producer and consumer of chemicals. It has long been one of the largest markets for sulphuric acid and alkali but lately these mineral raw materials have been supplemented by a tremendous number of organic compounds used as selective solvents for dewaxing lubricants, as gum inhibitors, anti-oxidants, and as pour point depressants. On the other side of the ledger are credits for an ever-increasing number of new chemical products of petroleum origin, ranging from the production of isopropyl alcohol and other solvents from olefin gases to the synthesis of fatty acids by oxidation of petroleum hydrocarbons.

At the time of the May, 1934, meeting in New York of the American Institute of Chemical Engineers, Carleton Ellis, research consultant, exhibited soaps of petroleum origin that possessed increased cleansing properties, lathering freely even in hard water. Acetic acid, most important of the organic acids and potentially the basis for a tremendous advance in the rayon, cellulose and plastic industries, has also been made experimentally from petroleum gases. Details of the process now in semi-works scale operation of Baton Rouge, La., cannot be divulged at this time, but in general it may be said that the raw material (hydrocarbon gases from the refinery) is cracked in an electric arc to produce acetylene which is carefully purified and converted into acetaldehyde and acetic acid. The final product is a 98 per cent acetic acid which is used to prepare solvent esters such as isopropyl acetate.

RESINS FROM PETROLEUM

When gasoline is produced by the cracking process, the petroleum refiner is often bothered by the formation of gummy materials that are undesirable in motor fuels. To turn such a nuisance into a blessing, chemists in the Thomas & Hochwalt research laboratories developed a catalytic process for greatly accelerating this gum formation in order to produce a new type of synthetic resin. By varying the treatment given the petroleum distillates, gums or resins of widely different characteristics may be obtained. For the paint and varnish industry, for example, a hard brittle resin of light amber color may be produced. For use in molded plastics, the petroleum resins may be compounded with certain hardening agents, in which case they take a permanent set like the phenol-formaldehyde resins of the Bakelite type. They have been used for fabrication of steering wheels, tool handles, electrical fixtures and the like. It is significant that the development has been advanced, not by the petroleum industry, but by one of the fine chemical manufacturers in collaboration with the original research agency.

OLIGODYNAMIC SILVER

Minute quantities of silver, as little as 25 mg. in a ton of water, have proved highly effective in destroying bacteria. For some years this germicidal property of one of our precious metals has been utilized in water sterilization in Germany, but it was not until 1934 that the process as developed by Dr. G. A. Krause of Munich found an American application. Last Spring, the Congressional Country Club in Washington installed what is known in this country as the Katadyn process for purifying the water in its new 150,000-gal. swimming pool.

Water treated by the Katadyn process takes on germicidal properties which persist as long as the silver remains in solution. The quantity of silver added is so small that it is without any harmful effects on the human system, and the treatment does not impart any objectionable odor, taste or color to the water. Obviously it is too soon to attempt to estimate the significance of this development as a competitor of chlorine and other chemical sterilizers. Nevertheless it has led to some interesting speculations as to the quantity of precious metal that would be consumed were the process to be applied on a national scale.

CAMPHOR FROM TURPENTINE

One of the papers that attracted most attention at the April, 1934 meeting of the American Chemical Society was a description by H. W. Elley and Ivan Gubelmann of the duPont Company's successful production of synthetic camphor from turpentine. Although previously attempted on several other occasions in the United States, it was not until the acquisition of the Newport Chemical Corp. in 1931 that duPont was willing to go ahead with its research developments. In 1932 a plant was built having an annual capacity of 1,200,000 lbs. in which is used a process that had been jointly developed by the Newport and duPont companies. The chief raw material is pinene obtained by fractionating turpentine. Pinene is saturated with muriatic acid to form bornyl chloride. This is hydrolyzed to give camphene, which is esterified and saponified to give isoborneol. This is readily oxidized to camphor and purified by sublimation and fractional distillation. Synthetic camphor has not yet been accepted in the U. S. P. for medicinal use but finds wide application in industry, particularly as a plasticizer in pyroxylin plastics such as celluloid or pyralin.

MURIATIC RENAISSANCE

For a number of reasons hydrochloric acid in recent years had become a drug on the market. It had been displaced by other acids which were less corrosive and therefore easier to transport and use. But early in 1934 that situation underwent a striking change. Hydrochloric acid was again in active demand, and several chemical plants that had previously given up its manufacture hastily resumed operations. Two developments were responsible for this greatly renewed activity. The first of these was the Dowell process for the chemically controlled acidulation of oil wells. The second, which incidentally made possible the first, was the development of organic inhibitors which, when added to the acid, entirely eliminated its action on metal, at the same time reserving its corrosive attack on limestone and calcareous material found in oil-well formations.

REJUVENATION OF OIL WELLS

Chemists and engineers of the Dow Chemical Co. developed the process in an attempt to increase the output of certain of their natural brine wells in Midland, Mich. They found that if a 15 per cent solution of inhibited hydrochloric acid was forced down the casing of one of their exhausted wells, the casing remained unharmed but the acid dissolved the calcareous binder in the sandstone formation and rejuvenated the well. When these results came to the attention of the engineers of the Pure Oil Co., they tried the same method with oil wells with the same remarkable results. A technique was evolved which includes blanketing the well bottom to prevent the acid from striking down; methods for dissolving out paraffin and other plugging materials, and methods for speeding up the rejuvenation process by applying pressure to the acid. A new oil-well servicing subsidiary was formed, and, by May, 1934, the company was able to announce that it had successfully applied the acid treatment process to approximately 3,000 wells in the United States and Canada.

HEAVY WATER'S INDUSTRIAL SIGNIFICANCE

Award of the Nobel Prize in Chemistry for 1934 to Prof. Harry Clayton Urey of Columbia University brought recognition to the third American chemist who in the past 34 years has merited this great international distinction. The others are the late Prof. Theodore W. Richards of Harvard and Dr. Irving Langmuir of the General Electric Laboratories. Four of the coveted prizes have gone to France, five to Great Britain, and 15 to Germany. Dr. Urey was rewarded for his discovery of an isotope of hydrogen having an atomic weight twice that of ordinary hydrogen. This ''heavy hydrogen'' he called *deuterium* although the British on the suggestion of Lord Rutherford, have preferred to call it *diplogen.* In either case the sympol is *D.*

Combined with oxygen, deuterium gives a new form of water, popularly known as ''heavy water,'' which elaborate tests have shown to be present in ordinary water in the proportion of about one part in 5,000. However, in the residual water from electrolytic cells that have been operated for several years without changing, there is known to be a marked increase in the proportion of heavy water present. This has led to one of the commercial methods for its preparation.

So far heavy water has proved only a most interesting research tool but it opens up many possibilities. Great interest is attracted by its biological properties. Tobacco seeds will not sprout in heavy water, and will grow only about half as fast in a 50 per cent solution in ordinary water. Deuterium oxide is reported by Dr. H. S. Taylor of Princeton to have proved toxic to tadpoles in one hour and protozoa in 48 hours. Many other unique properties are being studied in university laboratories and in a few of the larger industrial research institutions.

From an industrial viewpoint, most interest attaches to the work of substituting the newer heavy hydrogen for the older light hydrogen in various hydrogen derivatives such as ammonia. It is believed that it will be possible to produce a series of entirely new compounds whose properties may well prove of interest and value to mankind.

Whether Dr. Urey's contribution ever produces dividends or not, it serves to emphasize one important conclusion. In the brief span of years since the war, the United States has built a chemical industry that is acknowledged to be the largest and most powerful in the world. That development has come about almost entirely as the result of American research by technical men who have been trained in American educational institutions. Dr. Urey was born in Indiana in 1893, received his bachelor's degree in zoology from the University of Montana in 1917 and his Ph.D. in chemistry from the University of California in 1923. It is on such a foundation that American achievements are being made today in industrial chemistry and chemical engineering.

PHYSICS

By F. G. Tucker

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INDUCED RADIOACTIVITY

During the past few years it has been shown that many atomic nuclei suffer disintegration or transmutation when they are bombarded with particles of sufficiently high energy. In all such transmutations that had been reported before, 1934, it was assumed that the particles liberated in the process were ejected at the moment of, or immediately after the collision. In an important article by M. and Mme. Joliot (*Jr. de Physique,* VII, 5: 153) it was shown, however, that in certain cases there was a delay of several minutes between the collision and the disruption of the struck nucleus. The authors had previously shown that beryllium, boron and aluminum emitted positive electrons (positrons) when they were bombarded with alpha particles from polonium. In an attempt to find the minimum energy of the alpha particles that would incite the emission of the positrons it was found that the emission did not stop with the cessation of the bombardment. Positive electrons were emitted from the aluminum for several minutes after the source of bombarding particles had been removed. The positrons were detected with a Geiger Muller counter, a sensitive device that counts individual particles, and also with a Wilson cloud chamber which showed definitely that the particles were positrons and not electrons. For each of the three elements, the numbr of positrons emitted per second, after the bombardment had ceased, decreased with time according to an exponential law. The same type of law holds for the time variation of activity of a natural radioactive substance so that this new effect is properly called ''induced radioactivity.''

In an ordinary radioactive substance which emits electrons there are two very important properties of the activity. First, the time required for the activity to drop to one half of its original value, this interval is called the half period of the element, and secondly the range in energy exhibited by the emitted electrons. The half periods of the three elements examined by the Joliots were; aluminum, 3 min. 15 sec.; boron, 14 min.; magnesium, 2 min. 30 sec. The large variation in the half periods precludes the possibility that the activity is due to a common contamination.

The energies of the emitted positrons were studied by photographing their tracks in a cloud chamber placed in a magnetic field. Under these conditions the curvature of the track is a measure of the energy of the particle. The positrons were found to possess all energies below a certain maximum value. In the case of aluminum the fastest positrons had energies of approximately three million electron volts, while for boron the maximum speeds corresponded to energies of 1.5 m.e.v. (in the remainder of this article m.e.v. will be used for the expression ''million electron volts''). Again we have a marked agreement with natural radioactive effects in which electrons are emitted with a continuous range of energies up to a certain maximum value.

The question of the mechanism or process involved in this new type of transformation is an important one. Guided by the previously known transmutations of light elements the Joliots assumed that two distinct processes were involved; first, a transmutation occurring without appreciable time delay in which the impinging alpha particle was captured by the struck nucleus and a neutron was ejected, and secondly the resulting nucleus, being unstable, after a certain interval returned to a stable condition by emitting a positron. In the elements examined in the pioneer experiments, therefore, the processes would be as follows: ${}_5B^{10} + {}_2He^4 \rightarrow {}_7N^{13} + {}_0n^1$
followed by ${}_7N^{13} \rightarrow {}_6C^{13} + (+e)$
$${}_{12}Mg^{24} + {}_2He^4 \rightarrow {}_{14}Si^{27} + {}_0n^1$$

followed by ${}_{14}Si^{27} \rightarrow {}_{13}Al^{27} + (+e)$

$${}_{13}Al^{27} + {}_{2}He^{4} \rightarrow {}_{15}P^{30} + {}_{0}n^{1}$$

followed by ${}_{15}P^{30} \rightarrow {}_{14}Si^{30} + (+e)$

In these equations a positron is designated by $(+e)$, and a neutron by ${}_{0}n^{1}$; the electric charge of a nucleus in terms of the electronic unit is written at the lower left of the chemical symbol and the atomic weight at the upper right.

In all of these processes it is assumed that the active or unstable nucleus results from the ejection of a neutron from the bombarded element. The minimum energy of the bombarding alpha particle that will induce this radioactivity should therefore be equal to the least energy that will cause the ejection of neutrons. An experimental check showed that such was actually the case. Furthermore, the atoms $(\text{nitrogen})^{13}$, $(\text{silicon})^{27}$ and $(\text{phosphorus})^{30}$ are unknown in nature which lends support to the hypothesis that they are inherently unstable.

Prior to 1934 the only methods sensitive enough to detect the products of nuclear disintegrations were those designed to detect individual particles or very small numbers of particles. In no case was it within the range of experimental possibility to separate disintegration products in amounts large enough for chemical analysis. In these experiments, however, the activity of the unstable atoms furnishes a very sensitive method of detecting their presence so that their behavior during chemical reactions can be followed. In this manner the Joliots were able to show that the active element from irradiated boron had chemical properties identical with those of an isotope of nitrogen, and the active element produced in the bombardment of aluminum had the chemical behavior of an isotope of phosphorus. Consequently, the discoverers suggested that the new unstable atoms be called "radionitrogen," "radiophosphorus" and "radioaluminum."

In addition to its intrinsic importance this major discovery is a unique event in the history of scientific research, for Mme. Joliot is the daughter of the illustrious pair, M. and Mme. Pierre Curie, who jointly isolated the element radium in 1898.

After the announcement of induced radioactivity, similar experiments were initiated in several laboratories. Ellis and Henderson at the Cavendish laboratory, Cambridge, England used bombarding particles of much higher energy, but obtained the same half periods for the induced activity. The efficiency of activation, however, was found to increase rapidly with an increase in the energy of the bombarding particles. Frisch obtained positron emission from sodium and phosphorus, bombarded with alpha particles, the half periods being 7 sec. and 40 min. respectively. As Ellis and Henderson point out, when aluminum is bombarded with fast alpha particles either of two processes may occur: (a) ${}_{13}Al^{27} + {}_{2}He^{4} \rightarrow {}_{15}P^{30} + {}_{0}n^{1}$ or (b) ${}_{13}Al^{27} + {}_{2}He^{4} \rightarrow {}_{14}Si^{30} + {}_{1}H^{1}$, but silicon is known to possess a stable isotope of mass 30, so only the process (a) gives rise to a radioactive element. The authors estimate that the number of collisions of type (a) is approximately 1/50 of those of type (b).

ACTIVATION BY NEUTRON BOMBARDMENT

A few weeks after the announcement of induced radioactivity by the Joliots there appeared the first of a series of articles by E. Fermi and his collaborators at the University of Rome. Guided by theoretical considerations Fermi suggested that neutrons should be more efficient in activating nuclei than the alpha particles used by the Joliots because the neutron carries no charge and could penetrate the nuclei of even the heavy elements. Such penetration is impossible with alpha particles due to the electrostatic repulsion between the positive charges of the nucleus and the particle. Experimental confirmation was obtained immediately. Out of 60 elements studied more than 40 showed induced radioactivity after the source of bombarding neutrons was removed. There is one interesting and important difference, however, between the results of Fermi and those of the Joliots. Practically all of the substances activated by neutrons emitted fast electrons, instead of the positrons which are given off when the bombarding particles are helium nuclei. It should be mentioned in this connection that, in the case of activated magnesium, the Joliots and others found that both electrons and positrons are emitted.

Fermi and his collaborators, E. Amaldi, O. D. Agostino, F. Rosetti and E. Segre have published a summary of their earlier papers in the *Proc. Roy. Soc.* (A. 146: 483). The bombarding neutrons were obtained from a sealed tube about 6 mm. in diameter containing beryllium powder and radon. The amounts of radon varied up to 800 milli curies and it was estimated that approximately 1000 nutrons per second per milli curie were given off. The energies of the neutrons ranged from small values up to 7 or 8 m.e.v. Control experiments showed that the gamma rays alone produced no effect, so the activation must be produced entirely by neutron collisions. The emitted electrons were detected with a Geiger Muller counter and the number of counts per minute gave an approximate determination of the decay curve and the half period. For many elements the decay curve was a simple exponential function indicating a single type of active nucleus. In some cases the activity was so strong that several thousand counts per minute were recorded.

In many instances the active element was identified by chemical analysis. The general method employed for this analysis was to add to the irradiated elements a small amount of inactive elements which were assumed to be isotopic with the active substance. If the activity followed a particular element during the chemical processes the source of activity could be attributed to an isotope of that element, since isotopes show identical chemical behavior.

For detailed results reference must be made to the original article. Some of the more impressive general features of the experiments are the following: First, over 40 elements showed induced radioactivity, including the heaviest elements in the periodic system. This result presents a sharp contrast with the observations in which the impinging particles are electrically charged. In this latter case transmutation has been achieved only for light elements, whose atomic number is less than 20. Another important feature is the evidence that the same active sodium is produced from both magnesium and aluminum, and active phosphorus from both sulphur and chlorine. The processes involved are thought to be ${}_{12}\mathrm{Mg}^{24}+{}_{0}\mathrm{n}^{1}\rightarrow{}_{11}\mathrm{Na}^{24}+{}_{1}\mathrm{H}^{1}$ and ${}_{13}\mathrm{Al}^{27}+{}_{0}\mathrm{n}^{1}\rightarrow{}_{11}\mathrm{Na}^{24}+{}_{2}\mathrm{He}^{4}$ followed in each case by the emission of an electron by the sodium, i.e. ${}_{11}\mathrm{Na}^{24}\rightarrow{}_{12}\mathrm{Mg}^{24}+$ (-e). Similarly, the active phosphorus ${}_{16}\mathrm{S}^{32}+{}_{0}\mathrm{n}^{1}\rightarrow{}_{15}\mathrm{P}^{32}+{}_{1}\mathrm{H}^{1}$ and ${}_{17}\mathrm{Cl}^{35}+{}_{0}\mathrm{n}^{1}\rightarrow{}_{15}\mathrm{P}^{32}+{}_{2}\mathrm{He}^{4}$ and ${}_{15}\mathrm{P}^{32}\rightarrow{}_{16}\mathrm{S}^{32}+$ (-e) All the evidence indicates that the two phosphorus nuclei produced by the above processes are identical in respect to mass and to electrical charge. It is quite probable, however, that the two nuclei are in different states of excitation, and this difference should be revealed by differences in the energies of the emitted electrons.

In Bohr's laboratory, J. Ambrosen *(Zeit. f. Physik*, 91, 43) has made a careful study of the energy distribution of beta rays emitted by two samples of active phosphorus prepared by the above processes. The velocities of the emitted electrons were determined from the curvature of cloud tracks produced by a magnetic field of known intensity. The electrons from the two samples had the same distribution of energies, and the activity in each case decayed with the same half period. The two types of nuclei are evidently identical and in the same energy state.

In the present stage of development of experimental technique the physicist has four atomic projectiles that can be used effectively in bombarding atomic nuclei. These projectiles are alpha particles, neutrons, protons and the nuclei of heavy hydron or deutons. Shortly after the pioneer experiments of the Joliots and of Fermi were announced, several experimenters succeeded in activating substances with fast deutons. Although protons apparently gave positive results, later experiments have shown that the observed effects were probably due to the relatively small number of deutons present in the proton beam.

The most notable results with deuton activation have been achieved by Crane, Lauritsen and Anderson at the California Institute of Technology, and by Lawrence and Livingstone at the University of California. The results obtained in both laboratories are given in numerous communications in *The Physical Review* (45 and 46).

Lawrence and Livingston have reported two cases of induced radioactivity that deserve special comment. Sodium was found to be strongly activated by deuton bombardment, emitting ordinary beta and gamma rays with a half period of 15.0 ± .5 hours. Absorption measurements showed that the gamma radiation was monochromatic, the energy of each photon being 5.5 m.e.v. The efficiency of activation in this case appears to be one of the highest yet observed and was found to increase rapidly with the number and speed of the bombarding particles. With more powerful apparatus to accelerate the deutons, the activity of the sodium should be comparable to that obtained with natural radioactive elements. The possible implications of this discovery for research in biology and in medicine are evident. A radioactive element with the chemical properties of sodium and having a short half life would have many advantages over radon for medical purposes. Chemical analysis showed that the active element in this case is an isotope of sodium, the process of formation being $_{11}Na^{23}+{}_{1}H^{2} \rightarrow {}_{11}Na^{24}+{}_{1}H^{1}$
followed by $_{11}Na^{24} \rightarrow {}_{12}Mg^{24}+$ (-e)

In the other case nitrogen was strongly activated by a beam of deutons brought outside the accelerating apparatus by means of a thin window of aluminum foil. Observation showed that neutrons were produced in the process of activation, which leads to the following reaction equation $_{7}N^{14}+{}_{1}H^{2} \rightarrow {}_{8}O^{15}+{}_{0}n^{1}$
followed by $_{8}O^{15} \rightarrow {}_{7}N^{15}+$ (+e)

This is the first case to be reported in which the radioactive atom is an isotope of oxygen.

Crane, Lauritsen and Anderson have made a careful study of the induced radioactivity of carbon and of boron, activated by deuton bombardment. A carbon nucleus, struck by a fast deuton may disintegrate according to either of the processes
(a) $_{6}C^{12}+{}_{1}H^{2} \rightarrow {}_{6}C^{13}+{}_{1}H^{1}+$ photon
or (b) $_{6}C^{12}+{}_{1}H^{2} \rightarrow {}_{7}N^{13}+{}_{0}n^{1}$
followed by $_{7}N^{13} \rightarrow {}_{6}C^{13}+$ (+e)

In disintegrations of type (b) the active element is radionitrogen, which was obtained by the Joliots from boron and alpha particles. Anlerson actually found that for carbon targets the half period and the energy distribution of the emitted positrons were identical with those of radionitrogen obtained from boron. The same author has studied the effect of the energy of the bombarding particles upon the induced radioactivity. Two carbon targets were bombarded by deutons with energies of 700,000 and 900,000 e-volts, and the energy distribution of the emitted positrons compared. No difference in energy was observed. Some of Anderson's remarkable photographs showing positron tracks from activated carbon are reproduced in *Phys. Review* (45: 653).

PHOTON-POSITRON TRANSFORMATIONS

Crane and Lauritsen found that carbon targets after being bombarded for 15 minutes by 900,00 volt deutons showed an intense activity that could be measured with an ionisation chamber. In light of the results previously described they assumed that the observed effects were produced by gamma radiation originating from the annihilation of positrons. Since approximately one-half of the positrons traveled away from the carbon through the air, only a small fraction of the radiation due to their disappearance was detected. When a sheet of heavy metal was placed just above the carbon the observed ionisation was almost doubled. This is precisely the result to be anticipated from Dirac's theory that the life of a free positron in a heavy substance is very small.

A positron and an electron disappear as particles, giving rise in most instances to two photons. In the disappearance of the electron pair and the appearance of the photons it is assumed that the principle of conservation holds for electric charge, for momentum and for mass-energy.

Oppenheimer and others have pointed out that the positron-photon transformation should also occur in the reverse direction, *i.e.* a photon of the proper energy should disappear with the production of a pair of particles whose total electric charge is zero. A positron and an electron fulfill this condition and there is considerable evidence that this pair production is an important, if not predominant, factor in the absorption of high energy photons. According to the theory, the probability of pair production increases rapidly as the wave length decreases, and for photons with energies of 5.5 m.e.v. nearly 60 per cent of the attenuation in lead is due to the production of pairs. The absorption coefficient of lead for short gamma rays, therefore, has a minimum value for photons with energies of about 3.5 m.e.v. Photons of less energy or of greater energy suffer greater absorption, and it is impossible to determine the energy of a photon from its absorption coefficient in a single metal.

Crane *(Phys. Rev.,* 46: 530) has determined the energy content of the gamma ray photons emitted by targets of lithium and fluorine under proton bombardment. Cloud photographs of the photo electrons produced by the gamma rays gave an accurate measure of the photon energy which was compared to the value obtained from the absorption coefficient and from Oppenheimer's theory. In addition to establishing the general validity of the theory of absorption by production of pairs, the experiments divulged the surprising fact that bombarded flourine gave off photons with energies as high as 12 m.e.v. This energy content is six times that of natural gamma radiation from radium.

TRANSMUTATION OF NUCLEI

At the Cavendish Laboratory the notable work reported in THE AMERICAN YEAR BOOK, 1933 has been continued and extended. One of the most significant studies is that of Oliphant, Harteck and Lord Rutherford *(Proc. Roy. Soc.* A. 144: 692) on the disintegration of deutons by deutons. The targets consisted of ammonium chloride, ammonium sulphate and orthophosphoric acid in which the normal hydrogen had been largely replaced by deuterium. The deutons were accelerated by potentials up to 400,000 volts and were separated from the protons in the discharge tube by means of a magnetic field. With all of the targets an enormous number of disintegration particles was observed. This was contrary to expectation for neither alpha particles nor fast protons have proved effective in disrupting the nucleus of heavy hydrogen.

The disintegration products consisted of two prominent groups of particles with ranges of 1.6 and 14.3 cms. and the behavior of the counter indicated that the particles bore a single charge. All the observed facts suggest the process

$$_1H^2 + _1H^2 \rightarrow _1H^3 + _1H^1$$

the proton, $_1H^1$, having the range of 14.3 cms., and the hydrogen isotope, $_1H^3$, having the range 1.6 cms. This assumed process is supported by a cloud photograph obtained by Dee *(Nature* 133; 564) that shows tracks due to two particles traveling in opposite directions with the proper ranges. Neutrons also, were found among the products of transmutation. This fact calls for an alternative mechanism,

$$_1H^2 + _1H^2 \rightarrow _2He^3 + _0n^1$$

In addition to their intrinsic importance these experiments are among the first to establish even indirect experimental evidence for the existence of triple weight hydrogen (H^3) and a helium isotope of mass three (He^3).

Lozier, Bleakney and their coworkers (*Phys. Rev.* 45: 655, and 46: 81) have obtained more direct evidence for the existence of these new atoms. In their experiments the triple weight hydrogen was detected with the mass spectrograph, and the new helium by spectroscopic methods.

QUANTITY SEPARATION OF ISOTOPES

The interpretation of experiments involving nuclear disintegrations has been very difficult and to a certain extent hypothetical because the targets contain two or more types of nuclei. In order to overcome this difficulty mass spectrometers have been devised which are capable of separating isotopes of light elements in milligram quantities. In the instrument designed by W. R. Smythe (*Phys. Rev.* 45: 294 and 724) the chief feature is a new type of magnetic lens capable of focussing on a slit all the positive ions of a given mass from an extended source. A combination of electrostatic and magnetic focussing is used and more than twelve per cent of the ions from an emitting surface of thirty square cms. can be focussed. Samples of Li^6, Li^7, K^{39} and K^{41} have been collected. Samples of pure isotopes of lithium have also been separated in the Cavendish Laboratory.

INTERNATIONAL CONFERENCE

An important international conference was held in London, Oct. 1-6, 1934 under the joint auspices of the International Union of Physics and The Physical Society of London. Papers and discussions were confined to two general topics: (1) nuclear physics including cosmic radiation, and (2) certain aspects of the theory of the solid state of matter. The published proceedings of this conference will constitute an excellent summary of recent developments in physics.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

AMERICAN CHEMICAL SOCIETY, 728 Mills Bldg., Washington, D. C.

AMERICAN ELECTROCHEMICAL SOCIETY, Broadway and 117th Street, New York City.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, Bellevue Court Building, Philadelphia, Pa.

AMERICAN INSTITUTE OF PHYSICS, 11 E. 38th St., New York City.

AMERICAN MICROSCOPAL SOCIETY, University of Illinois, Urbana, Ill.

AMERICAN PHYSICAL SOCIETY, Columbia University, New York City.

AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, University of Michigan, Ann Arbor, Mich.

ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS, Box 290, Penn. Ave. Station, Washington, D. C.

COPPER AND BRASS RESEARCH ASSN., 25 Broadway, New York City.

NATIONAL RESEARCH COUNCIL, 29 W. 39th St., New York City.

SOCIETY OF CHEMICAL INDUSTRY, Pratt Institute, Brooklyn, N. Y.

SYNTHETIC ORGANIC CHEMICAL MANUFACTURERS ASSN., 260 W. Broadway, New York City.

DIVISION XXII

BIOLOGICAL SCIENCES

ORGANIC EVOLUTION

By L. J. Cole

Professor, University of Wisconsin

GENERAL

Attacks on the problems of organic evolution have continued and have been most productive along genetic lines laid down in recent years. Significant advances have been made in the production of mutations, in hybridization and in cytogenetics in relation to questions of phylogeny. The detailed results are published in widely scattered journals, but fortunately pertinent general discussions have also appeared.

In the Penrose Memorial Lecture before the American Philosphical Society in Philadelphia, Conklin reviewed "A generation's progress in the study of evolution" (*Proc. Amer. Philos. Soc.*, LXXIV; *Science*, LXXX). Giving full credit to genetic discoveries, and to the possible rôle of the environment in producing mutations, Conklin still feels there is something within the organism itself which leads in the direction of adaptation. Goldschmidt (*Science*, LXXVIII), of the Kaiser Wilhelm Institute for Biology, speaking at the scientific meetings at the Century of Progress Exposition, examined more closely three aspects of evolution. Contrary to the beliefs of many students of geographical variation and some paleontologists, he expresses much skepticism regarding the idea that the differentiation of subspecies and geographic races constitutes a step towards species formation; he considers it rather a method by which species spread to new environments, but do not transgress the species limit. Goldschmidt's conclusions are based largely on his own work with the gipsy moth (*Lymantria*). On the same basis, he places much more emphasis on the possible evolutionary value of the effects of mutations on embryonic developmental processes, suggesting that in these may lie not only the basis for orthogenesis, but also the possibility of the start of new evolutionary lines from what are at their inception really monsters. Finally he quotes the work of Jollos, which emphasizes the frequent parallelism but real distinction between environmental effects and true genic mutations. Goldschmidt's summarized results on *Lymantria* (*Bibliographia Genetica*, XI) constitute a significant contributon to evolutionary study. Likewise Woltereck (*Zeit. ind. Abs. —u. Vererb.*, LXVII) has summarized his investigations of *Cladocera*, extending over many years, with respect to the problems of species differentiation. He believes that changes observed in *Daphnia* under long-continued experimental conditions cannot be sufficiently explained by genic change. It has been suggested, however, that these may fall in the category of *Dauermodifications* (alterations of the cytoplasm produced by the environment, or perhaps also by genes, which may last over a number of generations but slowly disappear).

A background for the relationship of genetics to development is furnished in two books which have appeared during the year, *Embryology and Genetics* by T. H. Morgan (Columbia Univ. Press) and *The Elements of Experimental Embryology* by Huxley and deBeer (Cambridge Univ. Press).

CYTOGENETICS

Cytoplasmic Inheritance. — East (*Amer. Nat.,* LXVIII) has reviewed the nucleus-plasma problem in detail and finds the evidence for specific cytoplasmic inheritance negative. If there are plasmatic hereditary factors, he concludes, they are identical in virtually all the types of crosses commonly studied and can not produce distinctive effects. The case stands "not proven." Goldschmidt, in an earlier number of the same journal, considering "The Influence of Cytoplasm on Gene-controlled Heredity," points out that the influence of the cytoplasm upon the action of genes in controlling hereditary traits has been found in many instances and that it seems to increase with taxonomic difference. He leaves open the question as to whether this influence is entirely cytoplasmic or under the control of genes in the form of *Dauermodification.*

Karyogenetics.—As the responsibility for inheritance becomes more firmly fixed on the chromosomes the mechanics of their behavior, both normal and abnormal, has been receiving ever-increasing attention. It would appear that the behavior of the chromosomes following hybridization, as well as the effects of dislocations, such as fragmentation, inversions, translocations, and deficiencies, may be of fundamental importance in relation to evolutionary processes. The evidence for this is particularly true in plants, and the number of contributions on the subject are too numerous to be mentioned in detail. A newly revised edition of Sharp's *Introduction to Cytology* (McGraw-Hill Book Co.) serves as an excellent basis for an understanding of the work. Blakeslee (*Journ. Hered.,* XXV) has furnished a popular summary, under the title "New Jimson Weeds from Old Chromosomes," of the extensive and enlightening results that have been obtained with this plant at the Station for Experimental Evolution of the Carnegie Institution. These investigations have dealt particularly with chromosome interchanges and with increase or decrease in the number of chromosomes of particular pairs. While some of the new forms are variable and cannot breed true, others, differing widely from the old types, reproduce with a constancy characteristic of true species.

Position Effect.—It has generally been assumed from common experience that a particular genom produces a specific phenotypic effect regardless of the relative positions of the genes on the chromosomes, and an experiment by Brink designed to put the question to test in corn gave results in conformance with this conclusion. Working with translocations in *Drosophila,* however, Dubinin and Sidoroff (*Amer. Nat.,* LXVIII) obtained results which they believe can be accounted for only on the assumption that translocated portions of chromosomes have influenced the phenotypic expression of adjacent genes. If such position effect were general, it might, as another source of variation, be a factor in evolution. Muller, in a paper to be presented at the meetings of the Genetics Society of America, gives further evidence of position effect in *Drosophila* and raises the question whether most or perhaps practically all *x*-ray "gene mutations" may not be position-effects rather than intragenic mutations. He also queries: To what extent may natural mutations also be of this type—a type incapable of providing material for indefinitely continued evolution?

Chromosome Structure. — The minute and extremely condensed form of the ordinary chromosomes has hindered greatly the attempt to link genetic findings with the finer structure of the chromosomes. The recent discovery by Painter (*Science,* LXXVIII; *Genetics,* XIX) that the chromosomes of the salivary glands of *Drosophila* are relatively of giant size and show constant features of structure along their length is already removing this barrier and furnishing a new tool for a more detailed examination of the problems of mutation, translocation, synapsis, and of chromosome architecture and behavior generally.

TAXONOMY AND PHYLOGENY

Manifestations of Polyploidy. — That the various manifestations of polyploidy often have a direct relation to taxonomic groups and probably to phylogenetic evolution has been recognized for some years. The work of numerous investigators is amassing a structure of evidence that seems destined to throw a new light on these problems. Two long-continued lines of work, that of Clausen, Goodspeed and others on tobacco (Univ. Calif., *Publ. Bot.*, XVII) and that of Babcock and his associates on *Crepis* (Univ. Calif., *Publ. Agric. Sci.*, VI) have recently been summarized and general conclusions stated. Babcock in particular (*Proc. Nat. Acad. Sci.*, XX) has attempted to evaluate the factors which have probably been of significance in the evolution of the many species of *Crepis* and its near relatives. These he lists as follows: (1) Translocations, which furnish a hypothesis to account for both increase and decrease in the number of pairs of chromosomes; (2) Interspecific hybridization. When followed by amphidiploidy this results in a doubling of the specific genoms and has abundantly been shown to produce true-breeding forms sufficiently different to be considered as new species. Interspecific hybridization followed by backcrossing on the parental species or by crossing to a third species may also sometimes produce constant new derivative forms which are potential new species. (3) Polyploidy. (4) Gene or point mutation, superimposed upon and operating concurrently with the foregoing factors. It is pointed out that natural selection will operate in connection with all these processes, but that the mathematical theory of natural selection, as developed by Fisher, Wright and Haldane, is concerned only with selection in Mendelian populations.

Variation. — The importance of training in systematics and the application of biometric methods to the study of natural populations is pointed out by Hubbs (*Amer. Nat.*, LXVIII), who sees however in the intrusion of the experimental method into systematic zoology "a pioneering act of paramount significance in the certainly approaching revolution in systematics," and forecasts "an actual field of *experimental systematics* . . . . . in process of organization." In this respect zoology is only following what is already well advanced with plants. Hubbs' own experimental work on hybridization of fishes has already set a high standard in the zoological field. Sumner (*Amer. Nat.*, LXVIII) reviews the general aspects of his breeding work on the subspecies of *Peromyscus*, with conclusions similar to those stated by Goldschmidt.

Serology. — In *Amer. Nat.* (LXVIII) Boyden applies again the method of investigating the broad phylogenetic relationships of animals by means of the precipitin test, and Irwin (p. 170) indicates how another technique may be employed to analyze the distribution of specific substances in the blood cells of segregates of dove species crosses.

VERTEBRATE ZOOLOGY

By James E. Kindred

Professor, University of Virginia

MORPHOLOGY

Changes.—Many old problems involving interrelationships between structure and function in the vertebrate body have been attacked by old and new methods, and additional facts and new interpretations of earlier observations have been presented during the past year. Thus in the field of histology, the leucophores of the skin of the frog were found to be opaque to ultraviolet light and to function as a protective filter on the surface of the body (Singer). S. H. Bensley reports that the ground substance of connective tissue gives specific reactions to pancreatin, pepsin and copper salts, and appears in definite sequence during the development of repair tissue. Fat occurs scantily at birth in rats fed on a stock diet, but increases until the third week when it slightly decreases in the liver, lung and renal cortex (Rice and Jackson). Epiphyseal cartilages have been shown to persist in old rats of the Bussey strain as they do in the Wistar strain, suggesting that this apparent abnormal persistence of a tissue which, in most mammals, is replaced early by bone may represent a permanent constitutional rather than a temporary anatomic characteristic (Dawson). According to Fairman and Corner, bone marrow constitutes about three per cent of the body weight in rats which proportion corresponds to the known conditions in the dog. Jordan has confirmed his earlier views that there is no difference in detail in the morphologic changes during contraction of striations in vertebrate and invertebrate muscle, a view which has recently been challenged. Further evidence for the origin of the red blood cells from modified lymphocytes has been given by Jordan from a study of carcinomatous lymph nodes. Also a prevailing view that red cells arise from endothelium is denied by Jordan on the basis of a study of conditions of erythrocyte differentiation in a variety of erythrocytogenic tissues. He holds that the red cells arise from hemocytoblasts which migrate into the capillaries and there differentiate into erythrocytes.

Hair Pigment. — New studies of the skin and hair show that the regional distribution of sweat glands is the same in the European and Negro, but the Negro has more glands per unit area in each region (Glaser). Head hairs from the same individual are similar in structure and pigment patterns (Hausman); and there are rhythms in the occurrence of red hair throughout life (Michaelson).

Vascular System.—In the vascular system, observations have been made on living lymphatics in the omentum of the rat (Simer) and the mesentery of the cat (Webb); in the rat, valves occur at one to two mm. intervals and prevent backflow of lymph; and in the cat the pulsations of the lymphatics were observed to be independent of the pulse rate. Great variation in the distribution of the branches of the coronary arteries have been found in the cat heart (Abramson *et al.*).

Thyroid Gland. — Comparative studies of the thyroid gland in rat and guinea-pig show that the same number of cells is present in animals of the same weight and that the number increases with weight increase (Friedman and Loeb). According to Heimbach, the usual statement that ''there are two pairs of parathyroid glands, inferior and superior'' is misleading, since in 25 human dissections the number varied from two to six and their positional relations to the thyroid gland varied as well. The anterior lobe of the human hypophysis is larger in women than in men and increases in size during pregnancy (Rasmussen). In doves and pigeons it is larger in females and is correlated with greater length of the intestine (Riddle *et al.*). Cytologic studies of the anterior lobe of the hypophysis of the rabbit show that eosinophil and basophi cells increase in oestrus (Wolfe *et al.*); and in the pig eosinophils increase in oestrus, but diminish when corpora lutea appear in the ovary (Cleveland *et al.*).

Reproductive Organs. — The predominant type of seminiferous tubule in the human testis has been found to be a complete loop with frequent anastomoses between adjacent tubules (Johnson). As in man, the testes of the chimpanzee descend into the scrotum before birth and remain there; in the macacque monkey, however, they descend at birth, but are withdrawn into the inguinal canal until the third to fifth year (Wislocki). In the ewe, the cells of the corpora lutea (of problematical origin) of the ovary are concluded to arise from cells of the stratum granulosum of the graafian follicle by Warbritton. No massive sloughing of the vaginal epithelium during human menstruation was found by Smith and Brunner; the middle zone of the epithelium thickens during this period. In bats which breed annually, the lining of the uterus is sloughed following ovulation if pregnancy does not take place (Hamlett).

Nervous System.—During detailed studies of the brains of representative amphibians, Herrick has found hitherto undetected cellular zones in the cerebral cortex of Necturus (salamander) which he interprets as foreshadowing certain cerebral zones in mammals. Detailed examination of the brain of the macacque monkey reveals more resemblance to lower mammals in the structure of the hypothalamus than of the thalamus (Crouch). Cohn and Papez from a study of variability of the calcarine fissure of dogs' brains have found that in some dogs (15 per cent) it is absent and that there is no relation between variability and breed of dog. According to McGrady, albino rats have larger eyeballs, smaller optic nerves, larger eye muscles and more motor fibers to the eye muscles than have gray rats. Counts of nerve fibers in the spinal nerves of rats show that the maximum number is reached at the 18th postnatal day and that the number decreases in old rats (Duncan). More unmyelinated fibers are present in the thoracic and sacral spinal nerves than in lumbar and cervical nerves (Davenport and Bothe). The cupula or mass of solid substance present above the hair cells in the ampullae of the internal ear in sections of fixed ears has been found by Bowen not to exist in life, but is the result of contraction and solidification of a mucilaginous substance by fixation. Hardy disclosed a new source of innervation for the sacculus of the human ear; this is a branch from the cochlear nerve and is the third to be described historically.

CYTOLOGY

Cytoplasm.—The central bodies of the ameloblasts (cells which develop enamel of teeth) in the dog and cat were found by de Renyi to migrate from the distal to the basal end of the cell during the development of enamel. In the rat, the Golgi apparatus of ameloblasts lies on the basal side of the nucleus in inactive cells and on the distal side in active cells (Beams and King). In the hypophysis of the rat, Severinghaus observed that the Golgi apparatus of the basophil cells differed in form and position from that in eosinophils. Rosof noted a correlation between secretion and Golgi apparatus and mitochondria in the parathyroid gland cells of the cat. Dalton observed that the mitochondria in the hepatic cells of the chick changed from filamentous to rod-like forms during development and that the Golgi apparatus shifted from a position near the nucleus to one adjacent to the bile capillary. According to Winters, the mitochondria and Golgi apparatus in the epithelial cells of the rat were markedly affected by bilateral castration, but not by unilateral operations. From these facts, together with observations on the chemical reactions of Golgi granules and mitochondria, Winters concludes that these structures are very similar and are the secretory products of the cells. Mitochondria in liver cells of Amblystoma, when fixed by the freezing-drying method which leaves them as nearly in the active state as is possible with fixed material, showed a definite reaction to the Millon test for protein; they were also insoluble in lipoid extractives, dilute acids and alkalis; they were heat coaguable, renatured by long contact with alcohol, and were digested by pepsin and alkaline pancreatin (Bensley and Gersh). New information concerning the physical differences between mitochondria and Golgi bodies has been reported by Beams and King. They subjected uterine gland cells of the guinea-pig and liver cells of the rat to enormous centrifugal force (in the ultracentrifuge) and found that the Golgi apparatus in the uterine cells was displaced to the centripetal pole of the cells and the mitochondria of the liver cells was displaced centrifugally. The use of this instrument holds great promise for divulging physical differences among cellular structures.

Nucleus.—The number of chromosomes in the cells of parthenogenetically derived tadpoles has been studied by Parmenter who found variations in number in different animals and observed that only those with the normal number for the species metomorphosed into frogs. From cytologic and chemical analysis of the heads of the sperms of fowl, Adamstone and Card conclude that these structures contain vitamin E. The behaviour of the nucleolus during mitosis in epithelium of Amblystoma larvae has been followed by Dearing who states that it is related to a definite chromosome and undergoes several chromatic changes during the mitotic process. Many important physical and chemical characteristics of nuclei have been obtained by Bensley from a study of various types of cells fixed by the freezing-drying method.

Embryology.—Living eggs of the rat have been found to be extremely sensitive to chemical and thermal stimuli in culture media and when blastulae were cultured they degenerated within 48 hours (Defrise). Long and MacDonald studied the phenomena of fertilization in living rat eggs and observed that the whole spermatozoan penetrates the egg and that extra sperms may enter as late as the 16-cell stage. In early cleavage each division requires from 18 to 24 hours. The living egg of the sheep is .147 mm in diameter according to Clark. It enters the uterus from 77 to 96 hours after coitus and becomes implanted about the 9th day. Waterman cultured rabbit blastocysts in embryonic extract and found that the blastocysts grew to the primitive streak stage. Such blastocysts would not grow when grafted to the omentum; later stages when so grafted gave rise to masses composed of the fundamental tissues (epithelium, cartilage, etc.). Rat embryos transplanted to the abdominal cavity and grafted to structures other than the glands (liver, etc.) developed in some cases into normal fetuses, but usually underwent absorption (Nicholas).

Transplanting.—Many experiments have been performed on embryos to test the influence of one region of the body on primordia foreign to the region. Heterotopic grafts of pieces of spinal cord from one Amblysoma embryo to another in the region of the spinal cord resulted in reduction in size or degeneration of the graft if it was adjacent to the cord, but it increased in size if it was placed further lateral, thus indicating the possible presence of a growth inhibiting substance in the spinal cord (Detwiler). Supernumerary spinal nerves may be developed in Amblystoma embryos if additional somites are transplanted dorsal to normal ones. Detwiler interprets this result as indicative of the subservience of nerve growth to mesodermal stimulation. Eye primordia transplanted from Amblystoma to Triturus larvae grow more slowly than normal, but when the conditions are reversed the transplants grow more rapidly than normal, thus indicating the response of growing transplants to the stimuli of foreign environment (Twitty *et al*). Ear primordia of Amblystoma when transplanted to other parts of the body may differentiate into vesicles, and ectoderm from other regions, when transplanted into the region of the future ear, may give rise to normal ears (Yntema). Helff reports that the tympanic membrane of the amphibian embryo differentiates from the skin under the influence of the tympanic cartilage even when this is grafted into parts of the body remote from the head. Eye primordia grafted into the tails of frog larvae, are not lost when the tadpole's tail is resorbed, but migrate onto the sacral region of the resultant frog (Schwind). The younger the stage at which limb primordia are transplanted in Amblystoma larvae, the greater the growth of the graft (Hollinshead). Slight difference of age does not seem to make any difference in the structures derived from somites which are grafted in the same region of the neck of the host as that from which they are obtained in the donor Amblystoma larvae. Also reversal of somites does not interfere with the potentialities of somites as regards muscle development in such larvae (Adelmann *et al.*) Early specificity of later structure is shown in the limb buds of chicks which do not regenerate parts derived from the anterior or posterior section if either is removed (Warren). The relation of early movements of the body to stages in nerve development are described by Windle for the cat embryo, in which the first reflex actions occur in the limbs at the 13- to 14-mm stage and are dependent upon the development of collateral fibers from sensory nerves to association nuclei in the spinal cord. The first responses of chick embryos to mechanical stimulation are wing movements which occur at six to seven days of incubation (Orr *et al.*) The influence of growth of peripheral parts of the body on the nervous system is shown by the experiments of Hamburger in which limb-bud extirpation in Amblystoma larvae resulted in hypoplasia of cells in the spinal cord. That active growth of one part of the embryonic body may produce changes in passive parts, causing them to appear as if growing, is a view held by Gilbert from a study of the development of the hypophysis of the cat.

Anomolies.—Explanations for anomalies in adult structure usually have a factual basis in ontogeny, but they have not been analyzed to any great degree as to cause. We usually say that arrest, duplication or persistence of embryonic structures are the agents of abnormality, but we are still in the dark as to the fundamental cause. Therefore, the observations of Plagens on the causes of congenital anomalies in mice are very welcome. He studied the embryos of mice afflicted with congenital defects in eyes and limbs and found that fluid blisters or blebs appeared early in the body surface of these embryos and became localized particularly in the region of the eye and the foot. In these regions the blebs produced thrombi which in turn either mechanically or chemically injured the forming tissues, prevented their growth or caused them to grow abnormally thus producing abnormal eyes and feet. Such defects were inherited.

INVERTEBRATE ZOOLOGY

BY J. A. DAWSON

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PROTOZOA

Morphology and Taxonomy.—Continuing his studies on the ciliates from fresh water mussels, George W. Kidder (*Biol. Bull.*, Vol. 66, No. 1) describes three species of the genus *Conchophthirius* with special stress on the neuromotor system which the author believes to be mainly conductile in function. The same author (*Biol. Bull.*, Vol. 66, No. 3) describes completely the nuclear phenomena incident on fission in these three species. The method of elimination of macronuclear chromatin during fission in four common species of ciliates is described by Dr. Kidder and William F. Diller (*Biol. Bull.*, Vol. 67 No. 2). Imogene Moore (*Jour. Exp. Zool.*, Vol. 69, No. 1) finds that the normal contractile vacuole system in *Blepharisma undulans* is not a permanent cell organ but a system of temporary and potentially independent components. In the fourth part of a series of studies on the *Euglenida*, James B. Lackey (*Biol. Bull.*, Vol. 67, No. 1) states that 16 chromosomes are present in *Distigma* and 12 in *Astasia*. The author traces the phylogenetic relationships of the Euglenida and related families. W. W. Swezey (*Jour.*

Morph., Vol. 56, No. 3) gives a complete cytological description of *Troglodytella abrassarti*, an intestinal ciliate parasitic in the chimpanzee. By the interesting method of micro-incineration, R. F. MacLennan and H. K. Murer (*Jour. Morph.*, Vol. 56, No. 2) study the localization of substances such as calcium and iron in certain flagellate symbionts from *Zootermopsis angusticollis*, a termite.

Physiology.—John B. Loefer (*Biol. Bull.*, Vol. 66, No. 1) shows that *Chlorogonium elongatum* is undoubtedly autotrophic but claims that the common flagellate, *Chilomonas paramecium*, probably is not autotrophic. It was found by Alford Hetherington (*Physiol. Zool.*, Vol. 7, No. 4) that *Colpidium colpoda* cannot be grown successfully in absence of living bacteria. The same author (*Biol. Bull.*, Vol. 67, No. 2) gives a method for sterilization of protozoa which involves both the washing and migration of the individuals concerned. Experimenting with the cultivation of *Trichomonas termopsidis*, William Trager (*Biol. Bull.*, Vol. 66, No. 2) maintains that, although some of the termite flagellates may be grown without cellulose, the *Trichomonas* in question can utilize cellulose only for its carbon requirements. Harry B. Yocom (*Biol.. Bull.*, Vol. 67, No. 2) reports that he found it impossible to adapt experimentally fresh water ciliates to life in sea water and that, of all the ciliates experimented on, *Euplotes patella* showed the greatest viability in fairly high concentrations of sea water. Comparing the method of locomotion in *Pelomyxa palustris* with that in *Amoeba proteus*, S. O. Mast (*Physiol. Zool.*, Vol. 7, No. 3) finds that the process is essentially the same in both forms but that it is somewhat easier to analyze in Pelomyxa than in Amoeba. Kenneth V. Thimann and H. Albert Barker (*Jour. Exp. Zool.*, Vol. 69, No. 1) give evidence to show that excystment in *Colpoda cucullus* occurs at an optimal temperature of 24° C. and that it is dependent upon the concentration of the added hay extract. According to the authors there are at least two excystment-inducing substances in hay extract. M. R. Garner (*Physiol. Zool.*, Vol. 7, No. 3), studying the relation of numbers of *Paramecium caudatum* to their ability to withstand high temperatures, finds that the greatest resistance to high temperatures is shown by thickly populated cultures in which the pH value is high. The degree of toxicity of certain amines for *Amoeba proteus* was found by Ruth B. Howland and Alan Bernstein (*Biol. Bull.*, Vol. 46, No. 3) to vary uniformly with the *H-ion* concentration, being highest at a pH of 7.8 and lowest at a pH of 6.4. Douglas Marsland (*Jour. Cell. and Comp. Physiol.* Vol. 4, No. 1) reports that certain higher paraffin oils such as dodecane and tetradecane, usually regarded as non-narcotic, give narcotic effects when introduced into the protoplasm of *Amoeba dubia*. The author considers that the narcotic action of the paraffins is localized in a surface layer of the protoplasm which is non-aqueous in character.

Genetics.—As the result of an extensive study, involving hybridization and segregation in *Paramecium aurelia*, T. M. Sonneborn and Ruth Stocking Lynch (*Jour. Exp. Zool.*, Vol. 67, No. 1) conclude that it seems probable that the usual Mendelian situation, somewhat modified, exists in this organism.

METAZOA

Morphology and Development. — Discussing the question of longitudinal division in *Hydra*, Robert L. Roudabush (*Biol. Bull.*, Vol. 66, No. 3) states that such division in Hydra is a process of regeneration rather than of reproduction since he has observed such division to occur only after injury to the animal. H. W. Stunkard and R. F. Negrelli (*Biol. Bull.*, Vol. 67, No. 3) discuss critically the genus, *Sterrhurus*, of the Trematoda (flukes) and describe a new species, *Sterrhurus branchialis*. An interesting adaptation whereby the glochidial larvae of *Cyprogenia aberti* (the Arkansas fanshell) form masses, called conglutinates, which serve as fish lures and consequently aid in the transfer of the larvae from the female mussel to a host fish, is described by Thomas K. Chamberlain (*Biol. Bull.*, Vol. 66, No. 1). A unique case of infection of embryo bats with unknown species of nematode parasites is described by G. W. D. Hamlett (*Biol. Bull.*, Vol. 66, No. 3), the parasites apparently pass from the maternal blood stream to the embryos. A. J. Waterman (*Biol. Bull.*, Vol. 67, No. 1) studying the process of reproduction in the annelid, *Sabellaria vulgaris,* describes fertilization, early development and various factors concerned with these in this form. The same author (*Biol. Bull.*, Vol. 67, No. 1) obtains exogastrulation of embryos of *Arbacia punctulata* by exposing blastula stages to hypotonic sea water, or by lowering and raising the temperature or by *x*-rays. He concludes that mechanical explanations for this phenomenon are unsatisfactory.

The identity of eggs of the pelagic copepod, *Tortanus discaudatus* is established by Martin W. Johnson (*Biol. Bull.*, Vol. 67, No. 1) who studies the early stages in development of this widespread copepod. Reviewing previous work on the chemoreceptors of blowflies and adding new experimental and morphological evidence of his own, N. E. McIndoo (*Jour. Morph.*, Vol. 56, No. 3) concludes that blowflies smell, not by means of the antennae and palpi, but with the tarsi which bear olfactory organs. Using intravitam technique, M. Anthony Payne (*Jour. Morph.*, Vol. 56, No. 3) describes the male reproductive organs and the method of aggregation and turning of the sperms in the hemipteran, *Leptocoris trivittatus.* In the sixth part of a series of studies on insect development, Eleanor H. Slifer (*Jour. Exp. Zool.*, Vol. 67, No. 1) demonstrates that grasshopper (*Melanoplus*) embryos are able to withstand great increases or decreases of osmotic pressure of the medium surrounding them and that this fact is of great importance in accounting for the abundance and success of the Orthoptera. The same author with Robert L. King (*Jour. Morph.*, Vol. 56, No. 3) describes the early development of grasshopper eggs of known age and known temperature history while Robert L. King and Dr. Slifer (*Jour. Morph.*, Vol. 56, No. 3) conclude the current part of the series with a study of the maturation and early development of unfertilized eggs of *Melanoplus.*

Cytology.—Franz Schrader (*Biol. Bull.*, Vol. 67, No. 3) inquiring into the question of the reality of spindle fibers concludes, as the result of experimental work, that the half-spindle fibers are not coagulation artefacts but have a morphological basis in the living spindle. The blood of the sea-spider *Anoplodactylus lentus,* has been studied by A. B. Dawson (*Biol. Bull.*, Vol. 66, No. 1) who finds that numerous corpuscles containing variously colored pigments are present. Neither hemoglobin nor hemerythrin are present and the true nature of the pigment material is at present unknown. Leigh Hoadley (*Biol. Bull.*, Vol. 67, No. 2) shows that in the unfertilized egg of *Arbacia punctulata* the female pronucleus may be in any relation to the attached polar bodies. The finer structure of the chromosomes of *Drosophila melanogaster* is studied by Berwind P. Kaufmann (*Jour. Morph.*, Vol. 56, No. 1) who followed the entire cycle of mitosis in the ganglion cells. A somewhat similar study of the chromosomes in the salivary glands of *Chrinonomus* larvae is made by R. L. King and H. W. Beams (*Jour. Morph.*, Vol. 56, No. 3). The authors find four pairs of chromosomes present and state that each can be recognized due to the characteristic distribution of chromotin discs of various sizes. The homologous chromosomes pair accurately, part by part.

Polarity and Regeneration. — Interesting experiments in the reunition of a brown hydra (unidentified) were made by Emma Johnstone Papenfuss (*Biol. Bull.*, Vol. 67, No. 2) who found that small cut fragments may reunite to form a new hydra. The endodermal cells are most active in the process of reunition; the fragments first form a plate with ectoderm on one side and entoderm on the other; the plate then rolls into a cylinder and head and foot are later produced. In *Pelmatohydra oligactis,* D. R. R. Burt (*Jour.

Exp. Zool., Vol. 68, No. 1) states, as a result of grafting experiments, that in a non-budding animal the regenerative potency is a gradient with potency for head formation alone at the oral end and a gradually decreasing potency for head formation as one proceeds toward the foot and a gradually increasing potency for foot formation. The author states that his results are in accord with Child's theory of physiological dominance. Another author, Bernal R. Weimer (*Physiol. Zool.,* Vol. 7, No. 2) studying the reconstitution of pieces of *Pelmatohydra oligactis* dissociated by centrifuging, finds that rearrangement of entoderm and ectoderm cells occurs within a few hours and that reconstitution was practically completed within 70 to 90 hours. Again the author finds his results in accord with Child's theory. Harry Beal Torrey (*Physiol. Zool.,* Vol. 7, No. 4), working with the common hydroid, *Pennaria,* reports that regeneration of the hydranth is depressed by thyroxin solutions in concentrations of from 1: 50,000 to 1: 400,000. The author also reports that metallic iodine was more effective in depressing regeneration than thyroxin and that potassium iodide was ineffectual in this respect. Studying the effect of constant electrical currents on the regeneration of *Tubularia* (hydroid), L. G. Barth (*Physiol. Zool.* Vol. 7, No. 3) finds that low intensity current inhibits regeneration at the cathode while higher intensity current inhibits it at the anode. With *Pennaria,* all current strengths inhibited regeneration at the anode and with *Eudendrium,* the inhibited regeneration occurred at the cathode. The same author (*Physiol. Zool.,* Vol. 7, No. 3) studying the direction and magnitude of potential differences along the stem of *Tubularia,* finds that the hydranth is negative to regions along the stem; a regenerating region is negative to the middle of the stem and when stems are cut in half, the distal half has a higher potential than the proximal half. In a fourth study of regeneration in nemerteans, Wesley R. Coe (*Jour. Exp. Zool.,* Vol. 67, No. 2) states that although all heteronemerteans show a high capacity for posterior regeneration only *Lineus socialis* (of the Atlantic coast) and two species of *Lineus* from the Pacific coast showed capacity for extensive anterior regeneration of body fragments. The author believes that, since regeneration takes place only when some portion of the nerve cord is present in the fragment, the nerve cord activates the regenerative cells. In a further analysis of the regenerative processes in nemerteans, the same author (*Biol. Bull.,* Vol. 66, No. 3) concludes that the cut nerve ends liberate an agent which activates the dormant cells of the parenchyma and changes them into regenerative cells. Using x-rays in a study of reconstitution in *Stenostomum tenuicauda,* C. D. VanCleave (*Biol. Bull.,* Vol. 67, No. 2) states that this lowly organized worm shows a high degree of resistance to these rays which is comparable to that shown by the protozoa. Normal reconstitution processes are apparently unaffected by even high doses of x-rays. On the contrary, in the oligochaete worm, *Lumbriculus inconstans,* Clarence D. Turner (*Jour. Exp. Zool.,* Vol. 68, No. 1) finds that x-rays (with a dosage less than that used by the previous author) completely inhibit regeneration. In a continuation of his earlier work, Leonard P. Sayles (*Physiol. Zool.,* Vol. 7, No. 1) discusses regeneration in the polychaete *Clymenella torquata.* The author shows that anterior pieces containing few segments do not regenerate and that the capacity for regeneration increases continually up to pieces containing 12 segments. At this point nearly 100 per cent regeneration is obtained. E. A. Andrews (*Biol. Bull.,* Vol. 67, No. 2) concludes as a result of experiments in regeneration of the shell by the Cuban snail, *Pleurodonte rostrata,* that the process in this snail represents both "atypical" and "typical" methods of shell repair; in the former method no cuticle is formed while in the latter a true cuticle is regenerated.

Ecology.—In a study of the biotic constants of the confused flour beetle, *Tribolium confusum,* Royan N. Chapman and Lillian Beard (*Jour. Exp.

Zool., Vol. 68, No. 2) demonstrate a technique whereby the biotic constants may be reduced to relatively exact phenomena. The number of eggs laid per day per female may be studied and in populations the average number of eggs thus laid per day may be reduced to a relatively exact figure. G. L. Clarke and R. H. Oster (*Biol. Bull.,* Vol. 67, No. 1) have made photoelectric measurements to indicate the penetration of blue and red submarine irradiation. The authors have attempted to correlate their findings with the distribution (vertical) of phytoplankton in various regions. In a study of the phytoplankton of the Gulf of Maine, Trugve Braarud (*Biol. Bull.,* Vol. 67, No. 1) indicates that considerable fluctuations in the composition take place in the summers of different years and suggests that a fairly long continued study would be necessary to evaluate properly the factors concerned.

Behavior.—In regard to the coordination and movement of the swimmingplates of *Mnemiopsis leidyi,* B. R. Coonfield (*Biol. Bull.,* Vol. 66, No. 1) states that the apical organ is the center from which impulses travel out into the plate rows. The single isolated plates show a certain amount of autonomy, and the author believes that the coordinating system is more localized than has formerly been believed. The tentacular filaments of *Terebella magnifica* show a remarkable independence in behavior after removal from the worm according to John H. Welsh (*Biol. Bull.,* Vol. 66, No. 3). Both intact and isolated tentacles are sensitive to light. The author found no evidence of presence of a nerve plexus or net. The same author (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 3), studying the function of the recently discovered caudal photoreceptor of the crayfish, shows that leg movements may be induced in eyeless crayfish by illumination of this receptor. The number of eggs that may be laid in a single season by a sea hare, *Tethys californicus,* according to G. E. MacGinitie (*Biol. Bull.,* Vol. 67, No. 2) may be 478,000,000. The fate of most of these eggs is discussed by the author. Leonard G. Worley (*Jour. Exp. Zool.,* Vol. 67, No. 1), working with ciliated epithelium of several lamellibranchs, states that the activities of ciliated cells are controlled by at least three mechanisms within the epithelium, one being responsible for the ciliary beat, another determining coordination within the individual cell and a third active in regulating pluricellular coordination.

Physiology.—H. S. Taylor, W. W. Swingle, H. Eyring and A. A. Frost (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 1) announce that water containing the heavy isotope of hydrogen had an injurious effect on all organisms tested. Thus the flatworm, *Planaria maculata* was killed in four hours; *Paramecium caudetum* was killed after a period of 48 to 72 hours and *Euglena viridis* encysted in a short time after being placed in heavy water. Thirty per cent concentrations of heavy water were non-toxic for the organisms concerned. In a similar study by E. Newton Harvey (*Biol. Bull.,* Vol. 66, No. 2), the author found that heavy water (85-95 per cent) did not prevent luminescence of dried *Cypridina* but that it in general retarded the growth of luminous bacteria. It was found to kill a number of protozoa and rotifers but not to kill bacteria nor to injure Euglena irreversibly. In general its action was that of an unfavorable environment. The growth-promoting action of crustacean eyestalk extract was studied by A. E. Navez and B. Kropp (*Biol. Bull.,* Vol. 67, No. 2) who find that this substance increases the rate of elongation of parts of the wheat embryo. In this respect its action is similar to the normal growth hormone of the plant. Marian Pettibone and Rosalind Wulzen (*Physiol. Zool.,* Vol. 7, No. 2) have compared the growth-promoting power of chicken and rabbit tissues and state that, in general rabbit tissues promote growth better than the corresponding chick tissues; also that embryonic chick tissues contained more growth-promoting power than adult tissues. This, however, was not true of the rabbit tissues. Studying the physiological effects of x-rays on *Euplanaria* *dorotocephala,* H. H. Strandskov (*Physiol. Zool.,* Vol. 7, No. 4) reveals that the degree of the effect of *x*-rays varies directly with the length of exposure. The author also states that there is an antero-posterior gradient of susceptibility to *x*-rays similar to the gradients produced by other agents; his work may thus be interpreted as favorable to Child's theory. Vasil Obreshkove (*Physiol. Zool.,* Vol. 7, No. 3) in a similar study concludes that in the cladoceran, *Simocephalus vetulus,* the degree of injury produced on the animals is dependent upon the total amount of energy absorbed rather than upon the qualities of *x*-rays employed. In a study of the effect of temperature upon the respiratory quotients of nymphs of the grasshopper *(Chorto phaga viridifasciata)* and larvae of the Japanese Beetle (*Popillia Japonica*). Louis W. Kleinman (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 2) shows that both the gaseous exchange and respiratory quotients of the nymphs of the grasshopper and the larvae of the Japanese beetle vary directly with the temperature between 7° and 34° C. Ivan R. Taylor, James H. Birnie, Philip H. Mitchell and Julian L. Solinger (*Physiol. Zool.,* Vol. 7, No. 4), studying the hydrogen ion activity changes in the bee moth, *Galleria mellonella,* during metamorphosis, find that the body fluids are on the acid side of pH 7.0 at all stages. The hydrogen ion activity for both sexes decreases just before emergence from the pupal cases.

An interesting method of studying the sense of hearing in insects is outlined by E. G. Wever and C. W. Bray (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 1). The method consists of the observation of electrical changes set up in the tissues in consequence of stimulation by sound waves. The electrodes for detection of the potential differences were linked up with an amplifier and a telephone receiver, thus making the electrical effects arising in the tissue audible as sound. In regard to the nutritional requirements of the termite, *Termopsis* (*Zootermopsis*) *angusticollis,* S. F. Cook and K. G. Scott (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 1) find that the termites cannot live and grow on diets of purified cellulose or agar and sugars or protein; but if fed sugar, protein, salts and vitamins A, B, D and G will thrive. Joseph Hall Bodine (*Physiol. Zool.,* Vol. 7, No. 3) shows that the oxygen consumption of the developing egg of *Melanoplus differentialis* in general is independent of the oxygen tension of the environment. The same author (*Jour. Cell. and Comp. Physiol.,* Vol. 4, No. 3) states that, in studies on the effects of potassium cyanide on the oxygen consumption of developing and blocked grasshopper eggs, developing eggs are very sensitive to cyanide whereas the diapause or blocked eggs are very resistant to reversible doses of cyanide. The responses of grasshopper eggs and of fertilized and unfertilized sea urchin eggs are very similar. The same author with Titus Carr Evans (*Physiol. Zool.,* Vol. 7, No. 4) shows similarly that in the Mud Dauber wasp, *Sceliphron caementarium,* the actively developing larvae are more sensitive to *x*-rays than blocked or "diapause" larvae. The same author with Edgar John Boell (*Physiol. Zool.,* Vol. 4, No. 4) notes two types of response in the respiration of the grasshopper embryo to the action of carbon monoxide. The respiratory rate of blocked or "diapause" larvae is stimulated by a carbon-monoxide-oxygen medium containing enough oxygen for normal respiration whereas the respiratory rate of active embryos is considerably depressed by the same gas mixture.

VERTEBRATE PALEONTOLOGY

By Frederic B. Loomis

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GENERAL

Vertebrate Paleontology has three phases, first the search for such skeletons, or parts of skeletons, of the animals of the past, as have been buried where they could be preserved. As most animals die violent deaths and their carcasses are pulled apart, and all that can be eaten is eaten, it is quite general for small parts, especially teeth, to be the only remains, so that a host of animals are known first and often for a long time by such fragments only. Thus the search is not only for new forms, but even more for complete skeletons to fill out suggestions made by the fragments. The second phase is generally a careful description of not only the new but also the supplimentary material always coming to hand. With this goes the study of the relationships of the animals, with at last discussions of whole family histories. The third activity is preparing these skulls or skeletons and placing them on exhibition in the museums; so every one can check up the comparisons and become familiar with the actual remains on which the histories of the groups have been based.

SEARCH FOR SKELETONS

The first of these activities is carried on by field parties from 25 to 30 different institutions in this country. The following had the fortune during the current year of finding new or more complete animals. Of fishes Princeton University found a large series of the early and peculiar Devonian fishes near Beartooth Butte, Wyoming. Early reptiles found in Texas by the Harvard party, were especially representatives of that Permian form, known as *Seymouria*, which is considered the most primitive of the known reptiles. They also collected a reptile egg in these beds, which is the oldest egg yet found of a land animal. The American Museum of New York opened a quarry of dinosaur bones in the Big Horn Basin in which there are representatives of several individuals, each a more or less complete skeleton. At another locality in this basin they also found a skeleton of a bird-like dinosaur about the size of a turkey. The Red Deer River badlands in Alberta yielded to the Royal Ontario Museum of Toronto both dinosaur skulls and skeletons, especially a skeleton of the bird-like dinosaur, *Ornithomimus;* and also a nearly perfect *campsosaurus.* For the early history of the mammals perhaps the most important find was two quarries of early Eocene fossils near Beartooth Butte, where hundreds of skulls, jaws and bones were collected by the Princeton party. These quarries are very early, one Puerco, the other Torreon in age, representing a time when the mammals were just beginning to diverge into the numerous families, a few of which come down to the present, while the majority having played their rôle died out. From beds of approximately the same age the Field Museum of Chicago got skeletons of *Titanoides*, one of the earliest of hoofed animals. The Carnegie Museum of Pittsburgh continued gathering material of late Eocene age from the Uinta Mountain region.

The Oligocene badlands yielded several complete skeletons, supplimenting its already rich fauna. Some of the most outstanding were a skeleton of *Agriochoerus*, that curious clawed herbivor, for the University of Nebraska; a skeleton of the credont carnivor, *Hyaenodon*, for the South Dakota School of Mines, which institution also got skeletons of the little deer, *Leptomery*, the rodent, *Ischromys,* and the pig, *Elotherium.* Amherst College also got an *Elotherium.* A curious coincidence was the finding of the back of a skull of *Leptochoerus*, a tiny and most primitive camel, no trace of which has been seen since the first fragments were found in the 70s, by the School of Mines, and then the finding by the Amherst party of the front of a skull of the same animal 300 miles away. This illustrates how slowly some of the rarer animals come to be known.

The Miocene beds of the Great Plains gave up to the University of Wyoming a new camel in the main line of evolution; a skeleton of the oreodon, *Promerycochoerus,* to the University of Chicago; a new tapir to Harvard, and two new dogs to Amherst College. The Sepse beds on South Mountain in California yielded the California Institute of Technology a fauna comparable to that found in the Great Plains, especially the skeleton of a new oreodon. Both The University of Nebraska and Amherst College visited the site where the little deer, *Aletomeryx,* was found 20 years ago and both secured several skeletons. In South America Simpson for the American Museum collected a large series of the peculiar animals, now extinct, that lived there in the Oligocene and Miocene, especially skeletons of a new form, called *Scarritia.*

The Pliocene was visited by the U. S. National Museum and more of the horse, *Plesippus,* collected. They also found three skeletons of a new peccary in the same region.

STUDIES AND DESCRIPTIONS

Among the outstanding studies a few only can be mentioned. W. L. Bryan described the Devonian fishes found near Beartooth Butte. With these fish was found a series of land plants, the oldest yet found in the United States, which were described by E. Dorf. One of the striking finds of the previous year was the primitive reptile, *Trimerorhachis,* and this year C. E. Case has given us figures and a study of its relationships. W. A. Parks described his remarkably perfect and typical carnivorous dinosaur, *Camptosaurus.* The three-horned dinosaurs were monographed by R. S. Lull, which brings that aberrant group up to date. The early ungulate, *Titanoides,* was described by B. Patterson. E. S. Riggs brought out that very aberrant animal, known as *Thylacosmilodon,* which looks like a most advanced saber-toothed cat, but is a marsupial. Jepsen described a true saber-toothed cat, *Eusmilodon,* from the Oligocene which has the canine teeth as advanced as those of the last representative of the line, *Smilodon.* H. E. Wood surveyed the earliest rhinoceroses, *Hyrachiadae,* and has straightened out the beginnings of that family line. F. B. Loomis reconstructed the skeleton of that early chevrotain, *Nanotragulus.* For the use of beginning students in Vertebrate Palaeontology, A. S. Romer has written a book, *Man and the Vertebrates,* in which the evolution of many of the families is shown and man's pedigree is traced from the fishes.

ASSEMBLING AND MOUNTING

During the year the Museums have made unusual strides in the technique of assembling skeletons, and so mounting them that the unintiated may see the points on which family histories have been built up. In general the mounting of a skeleton shows not only what that particular animal looked like, but helps to interprete both the earlier and later representatives of the group. The American Museum in New York has rearranged its horses in so complete a series that the history of the horse family is at least fully outlined. The same has been done for the rhinoceroses and titanotheres. They have added *Plateosaurus* to the dinosaur hall, and put on exhibition the skeleton of the earliest of the crocodiles, *Protosuchus,* from the Triassic. The University of Nebraska added a mastodon to its already large set of elephants, also four rhinoceros skeletons, two of *Trigonias,* and two of *Diceratherium.* They also have two skeletons of that rare type of Miocene horse, *Merychippus.* Early camel skeletons are extremely rare, but the South Dakota School of Mines mounted one of *Poebrotherium,* the second complete one to be mounted. They also put up a skeleton of *Phenacodus* which is again the second one found complete enough to mount. The Royal Museum of Ontario at Toronto enlarged its great group of dinosaurs by adding skeletons of *Camptosaurus, Edmontosaurus* and *Struthiomimus,* the first two carnivors, and the last bird-like. Yale put up its skeleton of *Laosaurus,* so that its dinosaur group is coming to be notable. The University of Michigan has an outstanding assemblage of the earliest reptiles, to which they added a slab of *Trimerorhachis* with eleven skulls and an appropriate number of skeletal bones. The University of Chicago which has the other outstanding assemblage of early reptiles added *Ophiacodon* to their series. Early saber-toothed cats are getting to be well represented in the various museums. This year Princeton, Amherst, and the University of Nebraska each added one to their collections.

BOTANY

By Mildred E. Mathias

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BOTANICAL SOCIETIES

American Association for the Advancement of Science.—The annual meeting, including the Botanical Section, and its affiliated societies, was held in Pittsburgh during the Christmas holidays, 1933. Reports on research projects and general symposia attracted the attention of those in attendance. The summer meeting, 1934, of the Association was held in conjunction with the Pacific Division in Berkeley, Calif.

The Botanical Society of America had two summer meetings, one at Berkeley, jointly with the American Association for the Advancement of Science, and the other at Toronto. As usual informality was the keynote of these summer sessions, with field trips to points of interest a feature of the programs.

The Mycological Society of America held a summer field meeting in the Adirondacks.

Local.—Sessions of local interest included those of the numerous state and city academies of science and botanical societies.

PLANT PHYSIOLOGY

Aeration and Growth. — Plant physiology with its many important applications has provided an unlimited field for research studies. The problem of growth has been investigated by numerous workers and attacked from varying points of view with papers on the aeration and growth of canteloup seedlings, in which the results were interpreted as accordant with the rate-of-living theory of life duration; the growth of liverworts in nitrogen-free media; studies on the growth hormone of plants discussing the distribution of the growth substance in plant tissues, the relation of cell elongation to cell wall formation, and the inhibition of the development of lateral buds by the growth hormone; hydrion concentration changes in relation to growth and ripening in fruits; and effects of thyroxin, decrease in amount of transpiration, temperature and nutrition, various types of defoliation and leaf wounding, solutions of amino acids, carbohydrate and nitrogen relations, and continuous soil aeration on growth. The growth rates of several plants were studied and investigations made of some of the chemical changes during growth.

Light and Radiation.—The subject of light and radiation has held its position as a topic of interest for many investigators with papers on photosynthesis discussing the long and short wave-lengths limits, the chlorophyll unit involved, manometric measurements, and the effect on free nitrogen assimilation. There have been discussions of the relation of light intensity on fruit setting, effect of various light exposures on carbohydrate-nitrogen and base element relationships, light in relation to dormancy and germination, influence of supplemental light on blooming, and effect of intensity and wave-length on the response of *Avena* to light. *X*-ray investigations have been concerned with its effect on germination, growth and respiration. Ultra-violet radition effects upon the mineral composition of plants have been studied by others.

Other Studies.—There have been investigations of transpiration, sap hydraulics, water transfer, metabolism, the kinetics of penetration, mineral nutrients, *pH* effects, absorption, respiration, chlorophyll production and chlorophyll analyses showing evidence for the existence of a third component, dormancy, germination, effects of ethylene chlorhydrin, ethylene, hydrocyanic gas and mercury vapors, chemical composition of plants, effects of chlorinated water, evaporation and osmotic pressures, hardiness, and the applications of electrophoresis of latex to a study of species relationships.

MORPHOLOGY AND ANATOMY

Lower Plants.—Investigations of the morphology and anatomy of lower plants include studies of the archegonia of *Pellaea viridis*, vegetative reproduction in *Camptosorus rhizophyllus*, development of spore walls in *Sphaerocarpos Donnellii*, and the life history of *Polypodium polypodioides*.

Roots and Bulbs.—There have been pubications on the anatomical and histological differences between roots of barley grown in aerated and in non-aerated culture solutions, origin of foliar pseudo-bulbils in *Kalanchoë*, development of the embryo sac of *Lilium Henryi*, leader, needle, cambial, and root growth of certain conifers, a comparative study of the embryogeny of *Carya* and *Juglans*, anatomy of the vegetative organs of the parsnip, morphology of the seed of *Symphoricarpos racemosus*, root grafting, anatomy of the embryonic leaf, studies on the morphology of the Onagraceae, history of leaf development in *Bryophyllum calycinum*, morphology of the flowers of *Rosa* and related genera, male gametophyte of *Atriplex hymenelytra*, a comparative study of the seeds and spikes of certain species of *Plantago*, developmental anatomy in wheat, development and differentiation in the stem tips of grasses, leaf evolution, origin of adventitious roots, ovule and embryo sac of *Plumbago capensis*, ontogeny of the primary axis of *Soja Max*, and phloem anatomy in *Nicotiana*.

Wood.—Workers on the anatomy of wood have studied the xylem of *Pseudolarix*, wood structure of the Flacourtiaceae, systematic anatomy of the woods of the Malvaceae, *Hibiscus tiliaceous*, and the problem of variation in the structure of wood.

TAXONOMY

Explorations and Studies. — Botanical explorations are always of interest to the worker in systematic botany. They have included a continuation of Smith's explorations and Bishop Museum collections in the South Seas, Yuncker's botanical studies in the Hawaiian Islands and Yucatan, expeditions sponsored by the Academy of Natural Sciences, Philadelphia, in western China, remote mountain regions of western United States, and the high plateaus of central Mexico, and Department of Agriculture explorations for drought resistant and soil erosion species in Russian Turkestan, Persia, Afghanistan, Japan, and in various sections of this country.

Tree Planting Belt.—The shelter belt project for plantings of trees across the plains states is of interest to all systematic botanists as well as ecologists.

Field Work.—In connection with field work it is of interest to note the publication of the papers presented at the Botanical Society meetings in Atlantic City in 1932 in a symposium on the objectives and methods in field work.

Monographic and revisional studies have occupied many workers with papers on the genera *Gilia, Eriophyllum, Saxifraga, Macairea, Stelis, Grindelia, Heuchera, Tetramolophium, Chorizanthe, Panicum, Hyptis, Mentzelia, Erigeron, Trillium, Gaultheria, Fraxinus, Synthyris, Besseya, Draba, Antennaria, Salix, Mikania, Aegiphila,* *Scleria, Rubus* and *Vitis.* Family and group studies concern the Compositae, Bromeliaceae, Piperaceae, Betulaceae, Gramineae, and Labiatae.

Publications on the lower plants include those on the genus *Tetrastrum,* fresh-water algae of Newfoundland, algae of Steuben and Marion Counties, Indiana, Myxophyceae of Missouri, marine plankton diatoms of lower California, a continuation of the index to genera and species of Diatomaceae, desmids of Oklahoma, Bryophytes of Greenland, and ferns of California.

Floristic studies include additions to the catalog of Ohio vascular plants, Zenkert's flora of the Niagara frontier region, Moldenke's new edition of the flora of Watchung, New Jersey and vicinity, Graham's flora of the Kartabo region, British Guiana, additions to and notes on the floras of Washington, the coastal plain of South Carolina, James Bay region, western South America, Sumatra, Oklahoma, and Greenland. Fosberg has published a key to the families of monocotyledons in the Hawaiian Islands.

Papers of general interest are studies on speciation, the rôle of wood anatomy in taxonomy, the evolutionary status of plant families in relation to some chemical properties, and the species relationship in *Euphorbia* as shown by the electrophoresis of latex which is suggested as a useful tool in studying taxonomic relationships in lactiferous plants.

MYCOLOGY AND PHYTOPATHOLOGY

Fungi. — Papers concerned with systematic and development studies of fungi include investigations of the genera *Ophiobolus, Pyrenophora, Helminthosporium, Cochliobolus, Collybia,* and *Myxomycidium;* descriptions of new species of *Helicocephalum* and *Lepiota;* descriptions of various cup-fungi; studies on the Hydnaceae of Iowa; Dasyscyphae on conifers; notes on *Boletes;* Michigan Discomysetes; interesting or noteworthy Polypores and agarics; and some new fungi on Ericaceous hosts. The structure and development of a new aquatic Phycomycete, a critical study of the *Septonema multiplex* stage of *Lophiosphaera velata,* multiciliate zoospores in *Physoderma Zeae-Maydis,* two-spored forms of *Mycena,* the sexual mechanism of *Sclerotinia Gladioli,* sporangial germination in the genus *Myzocytium,* the development of *Cordyceps agariciformia,* a study of *Diplocarpon Rosae* from spore germination to haustorium formation, and a cultural and taxonomic study of *Hysterium hyalinum* have been the subjects of other publications. Macbride and Martin "The Myxomycetes" is a valuable contribution to the literature of mycology.

Virus disease investigations have continued to occupy a place of importance. Viruses of potato, celery, sweet clover, bean, alfalfa, cucumber, *Delphinium* and *Abutilon* have been studied. Information on tobacco mosaic has been increased with studies on the concentration of the virus, acquired immunity, host range and behavior, and multiplication of the virus. Birkeland has published a serological study of plant viruses; and Smith and Brooks "Recent Advances in Plant Viruses" is an excellent addition to the literature in this field.

Rusts. — Certain rusts of *Iris, Rubus,* and grasses have been investigated with papers on host specialization, biology, and light effects. Arthur's "Manual of the Rusts in United States and Canada" is an important publication.

Papers on miscellaneous plant diseases discuss *Verticillium* on eggplant and chrysanthemum, sweet potato ring-rot, downy mildew of tobacco and spinach, a *Phytophthora* disease of snapdragons, *Cercospora* on soybean, a *Cladosporium* disease of pea, black rot of cabbage, bacterial canker of pears, crown gall of apples and *Opuntia,* buckskin disease of sweet cherry, snowmold on grasses, *Diplodia* ear rot and bacterial wilt of sweet corn, onion bulb decay, stripe, leaf-spot and smuts of barley, heart rot of date palm, potato scab, a *Fusarium* disease of *Cereus Schottii,* cotton wilt, hollyhock stem canker, leaf spots, wilt and die-back of elms, and the association of *Cercospora herpotrichoides* with the *Festuca* consociation.

Other Studies.—There have been investigations of the relation of *Rhizobium* to nodule formation in legumes; infection, parasitism, and host resistance to *Armillaria mellea;* cytology of *Urocystis occulta;* cellular changes in ring-spot; occurrence and parasitism of *Aleurodiscus amorphus* in North America; and mode of infection of *Diplocarpon Earliana* and *Mycosphaerella Fragariae.*

GENETICS AND CYTOLOGY

The genus maize has continued to provide problems for genetical investigation with numerous papers on chromosome characters. Investigations of the genetics of *Datura,* wheat, particularly the development of disease-resistant types, oat hybrids, *Nicotiana,* and *Tradescantia* have been continued. Studies in inheritance include papers on cotyledonary characters in *Cucurbita Pepo,* inheritance of sex in certain seed plants, leaf variegation in the bean, and maternal inheritance of chlorophyll in sorghum. Lindegren has continued his contributions to the genetics of *Neurospora.* Other papers of interest include a contribution to an understanding of crossing-over within chromosome rings of *Oenothera,* *x*-ray mutations in the tomato, cyto-genetic studies of cotton, meiosis in a hybrid *Paeonia,* hybridity in *Fragaria,* genetic control over the development of shape, reaction of stigmatic tissue against pollen-tube growth in self-sterile plants, and mutation rate increased by aging seeds as shown by pollen abortion. Babcock has published an interesting paper on genetic evolutionary progress as ilustrated by the genus *Crepis,* in which he found the genetic processes involved in evolution in order of importance are chromosomal transformation, interspecific hybridization, polyploidy, and gene or point mutation.

Poinsettias.—Moyer has found in poinsettias that the chromosome number is correlated with the grouping determined by electrophoretic mobility curves.

Cellulose Membranes. — Farr and Eckerson have discussed the formation of cellulose membranes by microscopic particles of uniform size in linear arrangement.

Miscellaneous. — Contributions of interest concern the cytology of the abscission zone in *Mercurialis annua,* a cytological study of *Sorghum* and of various genera of the Iridaceae, chromosome behavior in *Pinus Banksiana* following fertilization, chromosome constitution in certain monocotyledons, mechanism of meiosis in *Fritillaria meleagris,* somatic chromosomes of *Cypripedium hirsutum* and *Habenaria* species, haploid chromosomes of *Riccia glauca,* and peregenesis and the controversy over parasynapsis and telosynapsis.

ECOLOGY AND PLANT GEOGRAPHY

Investigations of restricted areas from an ecological or geographical viewpoint include those on forest distribution in southwestern Michigan, postglacial migration of forests in Illinois, Wisconsin, and Minnesota, evidence of the rate of forest succession on Star Island, Minnesota, the edge of the forest in Alaska and the reasons for its position, the vegetation of Cat Island, Mississippi, vegetation of the Great Salt Lake region, distribution notes concerning certain plants of Glacier National Park, plant distribution as influenced by soil heterogeneity in Cranberry Lake region of the Adirondack Mountains, some botanical aspects of the Hawaiian Islands, vegetation of the northwestern coast of Mexico, observations of the seasonal changes in the marine algae in the vicinity of Halifax, and a bacteriological study of Flathead Lake, Montana.

More general discussions of ecological problems concern the plant communities of the dunes, the problems of the desert, problems of arctic vegetation, and a monograph on the prairie.

Studies have been made of Dismal Swamp peat and pollen analysis of Kodiak Bogs. Climax conditions in the pine hills of Indiana, foliar differences in eight dune and chaparral species, cypress buttresses and knees in relation to water and air, observations on drought injury in Minnesota forests, stem structure of grasses on the Jornada experimental range showing that solid stem may be an index to be used in selection of grasses for semi-arid regions, moisture and pH studies of soil under forest trees, and organization of the creosote bush with respect to drought are the subjects of other contributions.

MISCELLANEOUS PUBLICATIONS

Paleobotanical papers include studies of fossil flora in the Michigan coal basin and the Pennsylvania flora of Illinois and Kansas.

The teacher of botany will be interested in new editions of Robbins and Rickett, *Botany;* Holman and Robbins, *Textbook of General Botany;* Swingle, *Textbook of Systematic Botany,* and Sharp, *Introduction to Cytology.* There is also a new and revised edition of Saunders, *Useful Wild Plants of the United States and Canada.* Standford's *Economic plants* is a valuable contribution.

The student of forest problems will find of value Marshall, *The People's Forests;* Coker and Totten, *Trees of the Southeastern States;* Baker, *The Theory and Practice of Silviculture,* and Brown and Panshin *Identification of the Commercial Timbers of the United States.*

Those interested in gardening will find Wright, *The Story of Gardening,* from the hanging gardens of Babylon to the hanging gardens of New York, an interesting contribution. Other works include Sawyer and Perkins, *Water Gardens and Goldfish;* Mercer, *Gardens and Gardening, 1934;* Laurie, *Commercial Flower Forcing;* Bailey, *Gardner's Handbook;* Kains, *Modern Guide to Successful Gardening,* and Stout's *Daylilies,* a discussion of the wild species and garden clones.

ECONOMIC BOTANY

By H. K. Hayes

Professor, University of Minnesota

RESEARCH WITH ECONOMIC PLANTS

In the September number of *Country Gentleman,* 1934, Secretary of Agriculture, Henry A. Wallace, discusses the need of continued research in the various fields of agricultural science. He emphasizes the possible value of such research with the cotton plant, the importance of a wider use of the best seed available for different sections and the possibilities of creating forms of cotton better adapted than those now available. The study of other fiber plants is thought to be desirable and Mr. Wallace mentions fiber flax, hemp and jute, and the less well known such as ramie, kenaf, and sunn. The accomplishments in breeding super varieties of wheat and synthetic corn varieties that yield 10 to 30 per cent more than old-style corn are used as an illustration of the need for "over-hauling of all of our plant varieties in the light of existing plant breeding knowledge." Mr. Wallace says: "It is my firm belief that the next great romance in agriculture promises to be in the creation of an altogether new line of biological forms—new plant servants for man, if you please."

DISEASE RESISTANCE IN PLANTS

Studies.—The importance of developing disease resistant varieties of economic plants is becoming more generally recognized. At present this subject appears to be among the most widely studied phases of economic botany. Hanson, (*Royal Vet. & Ag. Col. Yearbook,* Copenhagen, Denmark, 1934, pp. 1-74), has attempted to collect most of the important literature references on the subject of the inheritance of resistance to plant diseases caused by fungi, bacteria and vira.

Wheat. — Ausemus *(Jr. Agr. Res.* 48: 31-57, 1934), presents a study of inheritance of stem rust resistance in wheat, where the extreme resistance of Hope wheat is differentiated from partial resistance or susceptibility by one or two pairs of genetic factors. In another experiment conducted in Minnesota *(Jr. Agr. Res.* 48: 59-60, 1934), evidence is given that it should be possible to combine in a single variety resistance to several diseases although there appeared to be linkage in inheritance between the genetic factors that control stem and leaf rust resistance and reaction to the bacterial disease known as black chaff. Hayes *(Minnesota Seed Grower* 7, No. 2, p. 1, 1934), briefly describes Thatcher wheat introduced into Minnesota as a stem rust resistant variety, of high milling and baking quality, produced through joint effort of research men from the Minnesota Agricultural Experiment Station and the Bureau of Plant Industry, U. S. Department of Agriculture. Briggs reports studies of the nature of genetic factors, carried by different wheat varieties, that are responsible for resistance to bunt. Three definite factors are known *(Genetics* 19: 73-82, 1934), and these are named according to the varieties in which they are carried. They were found and named accordingly as the Martin, Hussar and Turkey factors.

Oats. — Nicolaisen *(Zeitschrift f. Züchtg: A Pflanzenzüchtg* 19: 1-56, 1934) reviews most of the more important studies on the development of varieties of oats resistant to smut, caused by *Ustilago avenae,* and presents a list of 212 papers that have been published that have a relation to the problem. Further data are given, emphasizing the importance of a knowledge of the nature of the organism, methods of inducing an artificial epidemic of the disease and other problems that aid in a logical plan of breeding for smut resistance in oats. Stanton and Murphy *(Jr. Amer. Soc. Agron.* 25: 674-683, 1933) summarize their observations regarding several oat varieties, introduced from foreign countries, that appear highly resistant to crown rust, *Puccinia coronata avenae.* These include several selections of Victoria and Capa strains from South America belonging to the oat species, *Avena sativa,* as well as several varieties of *Avena byzantina,* particularly Bond and Kareela from Australia. This new material is highly resistant to crown rust and the variety Bond appears of great promise as it has given rather high yields in preliminary trials. A more recent report (*Phytopathology* 24; 165-167, 1934), summarizes preliminary studies where it was found possible to combine in a single variety resistance to stem and crown rusts and immunity to smuts from crosses of Victoria with Richland.

Barley.—A publication of the Wisconsin Station *(Wis. Agr. Exp. Sta. Res. Bul.* 116, 1933), records the reaction to ''stripe'' caused by *Helminthosporium gramineum.* Some selections proved highly resistant, and Wisconsin No. 38 excelled both in resistance to stripe and in yielding ability. It is a smooth awned variety with good malting quality and has been grown rather extensively in recent years. The writers point out that the extent of resistance to ''stripe'' is greatly affected by environmental conditions, particularly at the time of floral infection and in the seedling stage.

Beans.—The development of strains of Navy and Kentucky Wonder beans resistant to rust has been accomplished by Wingard at the Virginia Agricultural Experiment Station, (*Virginia Agr. Exp. Sta. Tech. Bul.* 51, 1933). He found resistance to be a simple dominant to susceptibiilty and obtained a 3:1 segregation in F_2. From crosses between the susceptible varieties, Navy and Kentucky Wonder, with resistant varieties and by selection in subsequent generations, it was possible to obtain varieties of the Navy and Kentucky Wonder type that had the necessary resistance to rust.

Cotton. — Ware and Young *(Arkansas Agr. Exp. Sta. Bulletin* 308, 1934), report on an extensive trial of wilt resistance in cotton and place the varieties tested in five groups on the basis of number of plants wilted. The test was carried out for a three-year period and certain varieties proved resistant consistently while others were more severely infected during each year of the trial.

Tobacco.—Resistance to mosaic is recorded by Nolla and Roque (*Jr. Dept. of Agr. of Puerto Rico* 17: 301-303, 1933), with particular reference to a variety called Ambalema. While most plants of this variety, when inoculated with mosaic, show no very marked symptoms, a small percentage exhibit chlorotic areas of a mild type.

Onion.—Jones and others (*Hilgardia* 8: 215-232, 1934) review previous studies of breeding plants resistant to insects, present data regarding resistance of onion varieties to thrips and discuss the characters thought to be responsible for this resistance. In one study the White Persian variety had an average infection of 8 thrips per plant while the infection of other varieties ranged from 20 to 42 thrips per plant. The White Persian variety is objectionable commercially because of its tendency to split badly and its poor keeping quality. Crosses were made between White Persian and other varieties by placing the varieties in muslin cages and introducing flies as pollinating agents. The crosses can be distinguished as seedlings by their darker foliage color.

Snapdragon.—Rust has gradually become a serious disease of snapdragons and control methods are difficult. Elmsweller and Jones (*Hilgardia* 8: 197-211, 1934), give evidence for the belief that rust resistant varieties can be bred. The preliminary step consisted of selection of a few highly resistant individuals that appeared in a population grown from Indiana seed. Studies of inheritance indicated that resistance was dominant to susceptibility in crosses and that one main factor pair was involved although the extent of resistance was conditioned by modifying factors. The backcross method is being used in attempts to transfer this resistant gene to commercial varieties.

HISTORY AND DEVELOPMENT OF SWEET CORN

Erwin described a specimen of Aztec sweet corn (*Science N. S.* 79: 589, 1934), loaned to him by the American Museum of Natural History and found originally in the Aztec Ruin in New Mexico, as the "only specimen of sweet corn so far identified from the numerous historical collections of corn recovered in the United States" and gave the estimate that the ear in question was grown during the 13th century. The infrequency of early specimens leads to the conclusion that sweet corn was not an important Indian plant (*Iowa State College Journal of Science* 8: 385-389, 1933). Erwin mentions the fact that Lindstrom at Ames discovered a single sweet (wrinkled) kernel in pedigreed cultures of dent corn as evidence for the probable origin of sweet corn by mutation from field corn. This conclusion was reached by East many years ago when the fact was emphasized that certain sweet corn varieties such as Golden Bantam and Crosby were derivatives of the flint types of field corn while Stowell's Evergreen and other late, large varieties were derivatives of the dent type of field corn.

CRESTED WHEAT GRASS

Kirk, Stevenson and Clark (*Dominion of Canada Dept. of Agr. Pamphlet No. 157*), state that crested wheat grass is a native of Russia capable of withstanding drouth and extremes of temperature. They find this grass to be highly adapted to the soil and climatic conditions of western Canada, especially in the short grass plains area. It is especially well adapted for reseeding abandoned fields in the drier parts of Saskatchewan and Alberta. Westover (*U. S. Dept. of Agr. Leaflet* No. 104, 1934), describes studies made in the northern Great Plains area of the United States. He finds crested wheat grass of value as a pasture grass, "when used in mixtures or in combination with other grasses or legumes that provide more feed during the heat of summer when crested wheat grass is dormant."

A PASTURE HANDBOOK

A publication issued from the U. S. Department of Agriculture as *Miscellaneous Publication No. 194*, 1934 with the above title contains a foreword by Secretary Wallace: ''Each farmer ought to examine for himself the possibility of sowing more land to pasture and roughage....... The right grasses, the right legumes, proper mixtures, inoculation, fertilization, careful use—all these, and more, are necessary to get and maintain good pastures.'' Vinall and Enlow give a comprehensive summary of the available species and varieties of pasture plants adopted to various sections of the United States, with a brief description of the more important economic uses of each plant. This is followed by a discussion of the utilization of pastures by Semple and Woodward. This handbook contains an index which aids materially in looking up any phase of the problem.

GREAT PLAINS SHELTER BELT FOREST PROJECT

On July 11, 1934, President Roosevelt allocated $15,000,000 to the Secretary of Agriculture for the planting of forest protective strips in the plains region, to aid in ameliorating drouth conditions. According to *The Forestry News Digest* for September, 1934, this protection forest belt strip will start at the Canadian border passing through the Dakotas, Nebraska, Kansas, Oklahoma and into the Pan Handle of Texas. About 20,000,000 acres will be affected and of this about 1,820,000 acres will be planted to trees. According to the plan, windbreaks running north and south will be planted one mile apart, making approximately 100 parallel windbreaks in the 100-mile wide belt. Each windbreak will be seven rods wide. The western border of the windbreak will follow approximately the line of 18 inches annual rainfall. Only the land planted to the shelter strips will be acquired by the government, the areas between the strips remaining in private ownership.

RUBBER PLANT EXPERIMENTS

A short summary (*Science N. S.* 80: 261, 1934), states that the Edison collection of goldenrod selections, recently transferred to the department, has given new impetus to the research program with rubber plants of the U. S. Department of Agriculture. After carrying on experiments with practically every plant used for commercial rubber production throughout the world the three most promising sources for domestic production are given as goldenrod, guayule, a shrub growing in the southwest and Hevea, the rubber tree of the tropics. While rubber of good commercial quality has been made from goldenrod, it is not possible at present at prevailing rubber prices to produce it on a commercial basis. Several thousand acres of guayule have been planted in California by a company interested in its development. It is commonly harvested every fourth year making a succession of plantings necessary. The Department has 30,000 Hevea trees growing in Florida and indications are that yields may be equal to that of the East Indies.

ENTOMOLOGY

By E. Porter Felt

Chief Entomologist, Bartlett Tree Research Laboratories

ADMINISTRATION

Organization and Appropriations.—The Federal Bureaus of Entomology and Plant Quarantine in the Department of Agriculture were combined, effective July 1, under L. A. Strong. There were also transferred to this administration some activities previously under the direction of the Bureau of Plant Industry, namely, citrus canker eradication, phony peach eradication, blister rust control, Dutch elm disease eradication and barberry eradication. The total appropriations for the combined Bureau is $4,984,421, the amount of the regular appropriation actually available being $3,718,254. The reduction of appropriations for the numerous projects is indicated by the fact that in 1933 over $5,500,000 was appropriated, while in 1934 it was a little less than $5,000,000. The changes incident to reorganization and the diverse sources of the funds make a close comparison impossible. A portion of the reductions effected was absorbed by a cut of approximately 15 per cent in salaries and wages paid to employees, the remainder being necessarily taken care of in curtailment of work. The reductions in appropriations for research were not augmented by special allotments from emergency funds. There were, in addition, certain amounts available from emergency appropriations for work on a number of control, not research, activities, such as blister rust control, barberry eradication and similar operations.

Foreign Parasite Introduction. — A division of foreign parasite introduction was established in the Federal Bureau of Entomology in June, a practical recognition of the technical nature and importance of this line of work. The general government has been introducing parasites of the gipsy moth, the brown-tail moth, the Japanese beetle and the European corn borer over a long series of years. This has involved sending special agents into widely separated parts of the world to search for the desired species, the development of methods of collecting and rearing and the exercise of every precaution to prevent the inadvertent introduction of the injurious and not easily detected hyperparasites.

EMERGENCY APPROPRIATIONS FOR ENTOMOLOGICAL PROJECTS

Control of Mosquitoes.—The Civil Works Administration authorized one of the greatest efforts on record for the control of pest mosquitoes as differentiated from disease carriers. The leadership was under the direction of the Bureau of Entomology. The largest number of men employed at one time was 19,485, this amounting to approximately 3,117,000 man hours. Work of this character was done in the states of Connecticut, Maryland and California. In addition, there were extensive operations from Dec. 15 to Feb. 15 for the control of malaria mosquitoes. These were conducted under the direction of the U. S. Public Health Service. The work was limited to 15 southern states with an estimated weekly average of 58,000 men.

Moths.—Extensive operations were also prosecuted in several New England states for the control of the gipsy moth and of the brown-tail moth, some 5,000 men being engaged in the latter operation. There was, in addition, an extensive cleanup program in Connecticut for the control of the European pine shoot moth.

These emergency projects not only provided much needed employment, but afforded opportunities to bring about better sanitary conditions in an entomological sense with a probability of material benefits in insect control extending over a series of years.

MOSQUITOES AS DISEASE VECTORS

Experimental evidence submitted by Major R. A. Kelser of the U. S. Army indicates that equine encephalomyelitis may be transmitted by the yellow fever mosquito, *Aedes aegypti,* while scientists connected with the Rockefeller Institute for Medical Research have found that the salt marsh mosquito, *Aedes sollicitans,* and the frequently associated *A. cantator,* also transmit the virus.

INJURIOUS INSECTS

Japanese Beetle.—Three distant infestations by this insect have been found at St. Louis, Indianapolis, and Charlottesville, Va. Extensive control programs are in progress in each of these infested areas, and it is believed that these and other precautions obviate any need for extending the regulated area. The St. Louis infestation is known to have existed since 1932. Operations the past few years in an isolated infested area at Erie, Pa., indicates the possibility of actually exterminating the beetle in such areas by systematic trapping and poisoning the soil. There is continued great abundance and serious injuries to fruit by this insect in southern New Jersey. The appearance of swarms of the beetles in the Philadelphia waterfront district was repeated the past summer.

European Elm Bark Beetle.—The record of the past season indicates this insect to be a principal carrier of the deadly Dutch elm disease. The control of this trouble to date has been confined practically to the locating and destruction of infected trees, and in spite of the efforts of the general government and the three affected states, there was in the 12 months ended the last of August, a nearly 20-fold increase in the number of known affected trees and an approximately three-fold extension of the known infected area. This indicates that carriers rather than the disease itself were the important factors in a control program. It is also suggested by the finding of infected trees at Old Lyme, Conn., 115 miles from New York City, the disease presumably having been carried by insects from some point near New York City. It is further supported by the practically unanimous belief on the part of those in charge of the work that future operations should be directed largely to the elimination of beetle-producing wood throughout the present known infected area. This means most of the territory within 50 miles of lower New York City.

Canker worms, both fall and spring, especially the former, were extraordinarily abundant and destructive in eastern and southern New England and adjacent areas in New York and New Jersey. The seriously affected area was materially larger than in 1933, though as a rule the infestation was somewhat less severe.

Gipsy Moth.—There has been an extension of the infested area in Pennsylvania, it now amounting to about 400 square miles. Parts of five counties are under regulation. A somewhat scattered infestation was found in the Borough of the Bronx, New York City, and a small one in New Jersey outside the area which was covered last year. The extensive work made possible by allotments of special funds have cleaned up certain areas in northern Vermont and northern New York and created conditions which would permit the moving of the Barrier Zone limits eastward in that section.

Screw Worms.—There was a serious outbreak of these destructive pests in the southeastern states of Georgia, Florida, Alabama, Mississippi and Louisiana, and heavy losses were sustained by farmers and stockmen in the territory, largely on account of a lack of experience in dealing with these pests.

Alfalfa root snout-beetle *(Brachyrhinus ligustici)* is fast developing into a serious pest of alfalfa in Oswego and Lewis Counties in northern New York. The beetles are present in enormous numbers and migrate over the ground to fields of alfalfa, considerable acreages of which have been completely destroyed.

Chinch Bug.—There has developed what is probably the most serious outbreak of this insect in the past 50 years. The extreme drought conditions in much of the area where this insect occurs caused premature drying of the small grains and forced an earlier migration into corn fields, more than 5,000,000 gallons of creosote being used in the control of this insect in the states of Illinois, Iowa and Missouri.

SUB-ZERO TEMPERATURES AND INSECTS

The extremely low temperatures of last winter killed a high percentage of European pine shoot moth larvae, caterpillars of the brown-tail moth in their winter nests, and to a less extent eggs of the gipsy moth. There was a considerable reduction in the wintering codling moth or apple worm larvae. The corn earworm and the Harlequin cabbage bug were unable to survive last winter in New Jersey. There was severe mortality of the San Jose scale in New England and the Middle Atlantic States and of the Japanese maple scale on Long Island. The Mexican bean beetle mortality was heavy in New Jersey and Ohio and a large percentage of the grubs of the Southern pine bark beetle were killed in Virginia. The grubs of the Japanese beetle wintered successfully, even as far north as Waterville, Me.

There was a very heavy loss of honeybees in the northeastern section of the country, it amounting to at least 40 per cent and to twice that in some localities. The great reduction in the numbers of honeybees added to the increasing shortage of wild bees in particular, resulted in a small setting of fruit and other farm crops depending upon insect pollination. The failure to swarm normally the past season has prevented recouping the honeybee losses of last winter, and conditions are favorable to heavy losses the coming winter, whether it be a severe one or not.

NECROLOGY

William Beutenmuller, for many years in charge of the entomological work of the American Museum of Natural History and well known as a Lepidopterist, died March 2.

M. C. Van Duzee, a specialist on the two-winged flies or Diptera and a resident of Buffalo, N. Y., died April 21.

Dr. J. M. Aldrich, for many years connected with the U. S. National Museum and widely known as an authority on Diptera, died May 27.

Dr. H. F. Wickham of Iowa, an outstanding authority on beetles or Coleoptera, died Nov. 17.

BIBLIOGRAPHY

Texts.—Three important texts have appeared within the year as follows: *A General Text Book of Entomology*, third revised edition, by A. D. Imms; *Entomology with Special Reference to its Ecological Aspects* by J. W. Folsom and R. A. Wardle, a thoroughly revised and in part rewritten edition of an authoritative work by the senior author, and *Veterinary Helminthology and Entomology* by H. O. Mönnig.

Popular Works.—There have been produced during the year two exceedingly interesting, somewhat popular and unusual works, namely, *Bumblebees and Their Ways* by O. E. Plath and *Jungle Bees and Wasps of Barro Colorado Island* by Phil Rau.

Technical works primarily for the entomologist or advanced student, are the following: *Termites and Termite Control* by Charles F. Kofoid *et al,* issued by the University of California, a unique series of studies by experts in various fields: *The Families and Genera of North American Diptera* by C. H. Curran, a rewritten and extended edition of the classic *Manual of North American Diptera* by Williston; *A Monograph of the Collembola of Iowa* by H. B. Mills, a comprehensive account of a comparatively unknown group, and *A Manual of Entomological Equipment and Methods* by Alvah Peterson. This last is unique in entomological literature, it being limited to descriptions and illustrations of equipment of all kinds used by entomologists in their investigational activities.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, 19th and the Parkway, Philadelphia, Pa.

AMERICAN ASSN. OF ECONOMIC ENTOMOLOGISTS, Amherst, Mass.

AMERICAN ASSN. OF MUSEUMS, 2 W. 46th St., New York City; c/o Smithsonian Institution, Washington, D. C.

AMERICAN MICROSCOPICAL SOCIETY, Kansas State Agricultural College, Manhattan, Kan.

AMERICAN MUSEUM OF NATURAL HISTORY, 77th St. and Central Park W., New York City.

AMERICAN NATURE ASSN., 1214 Sixteenth St., Washington, D. C.

AMERICAN NATURE STUDY SOCIETY, City Hall, Minneapolis, Minn.

AMERICAN ORNITHOLOGISTS' UNION, 1939 Biltmore St., N. W., Washington, D. C.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, Bureau of Plant Industry, Washington, D. C.

AMERICAN SOCIETY OF NATURALISTS, University of Pennsylvania, Philadelphia, Pa.

AMERICAN SOCIETY OF ZOOLOGISTS, Rutgers University, New Brunswick, N. J.

BOSTON SOCIETY OF NATURAL HISTORY, 234 Berkeley St., Boston, Mass.

BOTANICAL SOCIETY OF AMERICA, Cornell University, Ithaca, N. Y.

ENTOMOLOGICAL SOCIETY OF AMERICA, Kansas University, Laurence, Kan.

EUGENICS RESEARCH ASSOCIATION, Cold Spring Harbor, New York.

FIELD MUSEUM OF NATURAL HISTORY, Roosevelt Road and Lake Michigan, Chicago, Ill.

MUSEUM OF THE COMPARATIVE ZOOLOGY, Cambridge, Mass.

NATIONAL ASSN. OF AUDUBON SOCIETIES, 1775 Broadway, New York City.

NEW YORK MICROSCOPICAL SOCIETY, American Museum of Natural History, New York City.

NEW YORK ZOOLOGICAL SOCIETY, 101 Park Ave., New York City.

PALEONTOLOGICAL SOCIETY OF AMERICA, American Museum of Natural History, New York City.

REPTILE STUDY SOCIETY OF AMERICA, INC., 108 Convent Ave., New York City.

U. S. NATIONAL MUSEUM, Tenth and Constitution Ave., Washington D. C.

DIVISION XXIII

MEDICAL SCIENCES

PHYSIOLOGY

By Percy G. Stiles

Assistant Professor, Harvard Medical School

THE MAXIMUM OUTPUT OF ENERGY

This is a question of obvious interest and many data regarding it have long been available. Recent additions to our knowledge should be recorded. The traditional horse-power is defined as the work done in raising 33,000 pounds one foot in a minute. A man walking briskly up a grade may be entitled to rate as an engine of one-eighth of a horse-power or better. A record of nearly one-fourth of a horse-power (0.23) has been made by a highly trained man walking up Pike's Peak on the railroad. In this case the delivery of power was continued for more than two hours. For shorter periods higher figures are attained: oarsmen rowing at their best for five minutes have been credited with producing about half a horse-power per man.

Calculations of the power which a whale must apply in swimming at various rates have been published. The scale of the animal and the forces involved make one think of a submarine. A whale 75 feet long is estimated to weigh 205 tons and to have a surface of about 2,600 square feet. This stream-lined bulk could be carried along below the surface of the sea at a rate of 5 knots by a drive of 7.5 horse-power. To double this low rate the expenditure of energy must be increased seven-fold. To treble it and reach 15 knots the horse-power must be run up to about 170. It is shown that when the whale cuts the surface of the water and swims with part of its body in air the maintenance of speed is still more costly.

The magnitudes of the working parts in the whale make a strong appeal to the imagination. We are told that the blood may amount to 2,000 gallons capable of holding 1,700 liters of oxygen. The heart which keeps this huge volume of blood in circulation is said to weigh about 1,400 pounds. Thus its mass is equal to that of a horse. It is claimed that a whale can remain submerged for half an hour. If 1,700 liters of oxygen suffice for such an interval the rate of consumption must be much lower per unit of weight than in man. A condition favoring such economy is the remarkably efficient insulation of the whale's body against loss of heat. One is moved to wonder how it rids itself of the immense quantity of heat set free when developing 170 horse-power.

FATAL COOLING

It is usually taught that mammals cannot survive chilling which lowers the general body temperature by more than a few degrees. The normal for man is close to 37 degrees Centigrade. There are records dating from the last century of reductions to readings below 30 with recovery. Perhaps the lowest figure reported has been 24 degrees for a drunken man exposed to cold. A recent study has been made with rabbits plunged into cold water and then exposed to wintry air. Among 277 animals thus treated there were few deaths among those not chilled to levels below 25 degrees. As lower body temperatures were induced, the mortality became greater but many survived reduction to 19 and one, surprisingly, to 13 degrees. It must be borne in mind that these extreme subnormal temperatures were not maintained for any great length of time, seldom for more than half an hour.

PITUITARY AND PANCREAS

A great source of difficulty in the study of glands having internal secretions is the fact that such glands are constantly interacting. The cross relation may be in the nature of reinforcement or of antagonism. A curious instance of the latter seems to be afforded by the case of the pituitary and the pancreas. It has long been known that a chief effect of removal of the pancreas is an increase of blood sugar. This is a feature of diabetes. Removal of the pituitary in dogs has now been found to have the opposite effect, a progressive diminution of the sugar of the blood. Convulsions and death may follow, the train of events resembling the consequences of an overdose of insulin.

When experimental diabetes has been induced in an animal by the removal of the pancreas it has been found that the subsequent destruction of the pituitary may lessen the severity of the disease. An influence tending to raise the blood sugar is here counteracted by one tending to depress it. One may not hastily anticipate that a new treatment for diabetes will be developed along this line; in any case the conception of ''endocrine balance'' gains clearness by this illustration.

THE CAROTID SINUS

This is a slight enlargement of the internal carotid artery just beyond its parting with the external carotid. For an inconspicuous structure it has lately received a great amount of attention, and its importance to the organism is well established. It has been shown to be the place of origin of sensory nerve-paths which have to do both with the regulation of blood pressure and breathing. The endings of these fibers in the walls of the sinus are in some cases adapted to respond to mechanical, in others to chemical, stimuli. A general rise of pressure in the arteries of the head will stretch the walls of the sinus. Reflexes will be set up adapted to abate the abnormal pressure. The sinus thus supplements a regulatory function long known to be mediated by the arch of the aorta.

Chemical changes in the composition of the blood appear to take effect on appropriate nerve-endings in the sinus. The connections with the brain are such as to secure desirable changes in the depth and rate of respiration. In particular, a diminution of oxygen in the arterial blood results in a marked increase in the volume of air breathed. It has been held that the chemical control of breathing depended on the quality of blood actually flowing past the nerve-cells in the medulla. Such a direct influence remains a possibility; it is not excluded by the recognition of the properties of the sinus.

HUMORAL MEDIATORS OF NERVOUS EFFECTS

Here is a subject which is constantly attracting the attention of physiologists. When nerve-impulses arrive at the cells which are to be affected by them there are two evident possibilities. The changes caused in the protoplasm may be such as to produce the observed response immediately or there may be a preliminary stage consisting in the release of a drug-like agent. This ''hormone'' may then evoke the characteristic reaction. For many years we have known that the cells of the adrenal medulla (the internal as distinguished from the surface tissue of this organ) liberate a very active agent when the nerves of the gland are stimulated. The product in this case is *adrenin* or *epinephrine* and it is recognized as serving to intensify and prolong many bodily processes.

The above interpretation of the significance of adrenin had become familiar when it was shown that a comparable situation probably exists in the heart. There is good evidence that the action of the vagus nerve on the heart is a two-stage process. First occurs the production or activation of a hormone; this in its turn exerts the well known depressing or inhibitory effect on the rhythmic tissue. This is indicated by the fact that extracts or washings from a heart under vagus influence are definitely weakening to a second heart.

Within the last two or three years analogous conditions have been demonstrated in other localities. The primitive contractile tissue called smooth muscle, such as gives motility to the intestine, has been under renewed observation. Histologists report that the nerve-fibers traced into smooth muscle make connections with only a small proportion of the cells. Under the old theory that each cell must be directly contacted by the nervous system, this is an inexplicable arrangement. It becomes intelligible if the humoral agency in excitation or inhibition is recognized. If we suppose a chemical substance to be liberated in the cells actually played upon by nerves and then assume that this agent diffuses to the other cells of the muscle, the picture becomes intelligible. The concerted response of all these elements is explained.

DINITROPHENOL

A drug capable of surely and steadily reducing the body-weight has long been sought. Since gains and losses depend largely on appetite, medicines have sometimes been chosen on account of their power to blunt the desire for food. Their use is calculated to accomplish its purpose but it is bound to be unpleasant and likely to impair digestive capacity. Something which shall bring about reduction by increasing the decomposition processes of the tissues would seem preferable. Preparations of the thyroid have this property and they have been much used. They have, however, serious drawbacks; in particular they induce nervous instability.

The rather simple organic compound having the composition indicated by the name dinitrophenol has been shown to bring about extraordinary losses of body substance. In technical language it is a remarkable stimulant of metabolism. Its effect in this direction was first established by experiments on animals. The response was reported to be a simple increase in the intensity of oxidation, large doses causing a rise of temperature. There seemed to be no unfavorabl reactions, and the new drug was prescribed for human subjects. It proved itself efficacious in many cases but, as trials have multiplied, possible dangers have been made apparent.

Dinitrophenol seems to share with a few other drugs the property of producing what is called *neutropenia*. This consists in the almost complete disappearance from the blood of the type of white corpuscle which is normally most abundant. The result is disastrous, an acute illness with fever, sore throat and other symptoms often ending fatally like a virulent influenza. When life has been saved it has been by transfusions of normal blood or by x-ray treatment of the long bones in an attempt to stimulate production of the leucocytes. Such possibilities associated with the use of dinitrophenol forbid us to regard it as the ideal agent for weight reduction. At this writing it still seems necessary to recommend a diminished intake of food rather than a forced oxidation of the body stores.

THE ACID-BASE BALANCE

Popular writers on nutrition have had much to say about the importance of the acid or basic character of food residues. It is a fact that the ash from some articles of diet has a decided reaction to one side or the other. Thus the residues from meats are acid and those from most fruits and vegetables alkaline. It has been taught that the ration should be so constituted as to yield an alkaline rather than an acid ash. There is impressive evidence that the body can compensate for all ordinary variations of this sort. The reference is to trials made in a California hospital.

Measurable changes in the reaction

of the blood plasma can be produced by heavy doses of mineral salts, ammonium chloride to develop an acid tendency and sodium bicarbonate to swing the balance in the opposite direction. But calculations based on the composition of foods show that such quantities of salts can hardly be ingested as natural constituents of the diet. To produce an appreciable acidosis would apparently require the consumption of 4 pounds of lean beef or 2 pounds of oysters. To attain an alkalosis of comparable degree by eating oranges the subject would have to ingest 18 pounds of the fruit. It is obvious that we usually mingle foods of contrasted types and run little risk of overtaxing the regulatory powers of the body.

PATHOLOGY

By Max Trubek

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CEREBRAL MALARIA

Discovery of Symptoms.—While investigating the cause of death in a man brought to the Department of the Office of the Chief Medical Examiner in New York City, Dr. Milton Helpern was struck by the peculiar color of the brain in association with an enlarged and similarly pigmented spleen. Microscopic examination of these organs revealed the capillaries of the brain and the cells of the spleen loaded with the parasites of estivo-autumnal or Tropical malaria. This was an important observation, and word of his finding quickly spread among those entrusted with the investigation of death or the study of patients admitted to hospitals in coma of unknown origin.

Cases among Drug Addicts. — Other cases began to appear and in increasing numbers. All occurred among drug addicts, especially in those who were employing the intravenous route for the administration of their narcotic. Since the anopheles mosquito, which naturally transmits this disease from person to person in the Tropics, is a not unknown inhabitant in parts of Long Island, it became an important public health measure quickly to stamp out this potential source of great danger to the population.

Results of Investigation. — Detectives of the Narcotic and Homicide Squads were assigned to the investigation and soon determined that several of the fatal cases had never been away from the vicinity of New York City and many had frequented the same lodging house. A knowledge of the technique of intravenous injection employed by the addicts readily explained how a disease in one could be directly transmitted to others employing the same apparatus. "The syringe or 'works' is usually improvised by inserting a medicine or 'eye' dropper into a hypodermic needle which is designated as a 'spike.' An air-tight fit is attained by wrapping a small piece of newspaper around the tip of the dropper before inserting it into the needle. This apparatus is frequently used in rapid succession, without preliminary washing or sterilization, by two or more addicts for intravenous injection of a solution of heroin." When several addicts pool their funds to purchase a quantity of the drug, the syringe is used and passed from one to another, each injecting into his vein a proportion of the syringeful. A small amount of blood from the punctured vein always enters the apparatus so that an ideal method is established for conveying disease, in this instance the parasites of Tropical malaria, from one infected to several healthy individuals. They, in turn, may transmit the disease in the same way that it was acquired.

Analysis of Cases.—A total of 49 addicts were found to have the disease. All were of the male sex and the majority were in the third and fourth decades of life. Among these, 21 cases were fatal. Death was usually in coma as a result of the cerebral involvement by the malarial parasites. Thirty-nine of all the cases were of the estivo-autumnal type and it is among this group that most of the deaths occurred. During epidemics of Tropical malaria, the particular organism will often have a selective localization in one of a variety of organs, be it the intestine, brain, kidneys or heart. In this instance there was an intense localization of developing parasites within the capillaries of the brain with consequent plugging of the smaller vessels or actual small ruptures producing, aside from the inflammatory reactions, multiple small hemorrhages in the cerebral white matter. The spleens in these patients were enlarged, ''blue gray or slate colored, soft and swollen.'' These organs, too, on microscopic examination showed numerous malarial organisms and pigment granules.

Diagnosis and Treatment. — This localization and severe injury to such an organ as the brain made treatment extremely unsuccessful once the state of coma had supervened. When the stage of hemorrhagic extravasation had occurred, this very mechanical damage could result in a fatal outcome even though the infection itself might be successfully combated. Later in the course of the epidemic the recognition of such cases became prompt. The diagnosis of ''cerebral malaria'' was presumptively made in all patients admitted in a state of coma who presented needle puncture marks over the veins of the arm or who had an enlarged spleen. The intravenous injection of quinine, diluted in saline, slowly administered, was the most effectual method of therapy. Other remedies, such as atabrine and plasmochin, were also of value in some of the patients who recovered. The majority of the cases were observed in the wards of Bellevue Hospital; the fatal cases were all examined by the Office of the Chief Medical Examiner under the direction of Dr. Charles Norris. No new cases have occurred, the threatened epidemic was effectually suppressed.

AGRANULOCYTOSIS

Symptoms. — A disease picture known as agranulocytosis or malignant neutropenia has been appearing since 1922 with increasing frequency. The clinical course is characterized by a rapid disappearance from the circulating blood of the white blood cells of the granular or myeloblastic series. There is usually a concomitant severe infection of the gums or throat and an accompanying fever usually of progressively increasing severity, indicative of the profound constitutional reaction. Subsequent to this white blood cell deficiency, which deprives the body of one of its most important defense mechanisms against infection, a great variety of organisms may enter and gain foothold in the defenseless body tissues. Most of the earlier cases were necessarily fatal since no effective method for combating the disease was available and its cause was unknown except in isolated instances where the condition followed directly the use of a known drug, such as arsphenamine. The pathology within the bone marrow was not always a constant finding; many of the fatal cases which had presented typical manifestation of the disease syndrome, were found to have their bone marrow packed with immature cells of the granulocytic series. There was presumably a failure of maturation. In other cases there was an absence of all such cells, as would be expected from the examination of the peripheral blood.

Cause and Treatment.—During the past year new and important contributions have been made regarding the cause and successful treatment of this hitherto largely fatal illness. Madison and Squier and subsequently many others have presented strong evidence that amidopyrine medication administered to persons who are sensitive to this drug, is an important cause for agranulocytosis. Kracke had previously maintained that drugs belonging to the ''benzamine group'' may be responsible for this disease. Included in this group are amidopyrine, phenacetin, acetanilide, arsphenamine, neoarsphenamine. The influence of drugs may not be the cause of this disease in all cases, as Thompson also maintains, but we have personal experience of the typical sequence of events in several patients who had used amidopyrine. The number of cures has increased since the intrdouction of drugs calculated to stimulate the production of white blood cells of the granulocytic series, adenine sulphate (Resnikoff), pentose-neucleotides (Jackson) and liver extract intramuscularly. The use of transfusions is important and when the disease occurs in association with the menapause, we have, in addition, used pregnancy hormones, as had been suggested by the investigations of Thompson. The limitation of the indiscriminate use of drug combinations containing amidopyrine should considerably lessen the incidence of this serious illness.

MEDICINE

By Norman Plummer

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GENERAL

The progress of investigative medicine during 1934 has been along much the same lines as in 1933. Research in cancer and heart disease has continued at about the same pace, spurred on by the high incidence and mortality from these diseases, and again there has been much information accumulated without any deduction of striking practical value. The cause and specific therapy for cancer still remain in the realm of the unknown.

DISEASE OF THE KIDNEY

The study of disease of the kidney, as well as that of cancer and the degenerative lesions of the heart, has been assuming more and more importance in recent years. Several years ago a notable discovery was made when it was found that a particular non-toxic dye when injected into the blood stream clearly outlined the urinary tract in *x*-rays of that system. Many of the important developments of the last year have again utilized this important diagnostic procedure and much valuable information on the function of the kidney has been reported.

DIPHTHERIA

Infectious diseases have continued to be a field for fruitful research. Diphtheria, a disease which today is not very frequently seen but which not more than a score of years ago was one of the most deadly diseases of childhood, has again attracted attention. The definite cause was discovered about 50 years ago, and a treatment was worked out which has almost eradicated this terrible infection. The therapy has been both active and prophylactic; so-called toxin-antitoxin has been used which when given in a series of three injections has produced immunization. The active disease has been very successfully treated by the passive immunization with diphtheria antitoxin. During the past year a so-called toxoid has been used, in place of the toxin-antitoxin, which, with one injection only, provides immunity to a higher percentage of children than was formerly obtained from the three injections of the toxin-antitoxin.

INFANTILE PARALYSIS AND SLEEPING SICKNESS

Poliomyelitis (infantile paralysis) and encephalitis (sleeping sickness) have received much attention, stimulated by epidemics of these diseases, and by promising leads revealed in former years. A complete description of every phase of the St. Louis encephalitis epidemic has been reported as well as a number of experiments and studies suggested by the epidemic. The poliomyelitis epidemic in Southern California gave impetus to further research in this disease.

Poliomyelitis has been quite definitely shown to be a filterable virus disease, and many new attempts have been made to perpare a specific therapeutic for this condition. Artificially produced poliomyelitis serum has afforded no beneficial results. Human convalescent serum has been used quite extensively for treatment of the active condition and also prophylactically, but the reports show a great diversity of opinion and on the whole no definite evidence in favor of this therapeutic agent. Poliomyelitis vaccine has been prepared with certain modifications of old methods. Park and Brodie, of the Department of Health of New York City, have prepared a vaccine by treating the antigen with a low concentration of formaldehyde and incubating it. These investigators have been highly successful in immunizing monkeys against poliomyelitis with vaccine prepared in this way, and they are now carrying their studies to human subjects. Their's seems to be the most promising investigation in this field.

PNEUMONIA AND TUBERCULOSIS

Pneumonia and tuberculosis have also played important rôles among the infectious diseases on the research stage. The latest treatment of pneumonia is the so-called pneumothorax therapy which for many years has been successfully used in pulmonary tuberculosis. In this treatment, atmospheric air is injected into the pleural cavity on the affected side, thereby compressing and collapsing the adjoining lung. It has been found that in some cases of pneumonia this treatment has caused a sudden drop in the temperature and perhaps a shortening of the period of infection. This method has been highly successful in pulmonary tuberculosis and whether it can be adapted with parallel success to the treatment of the more acute infection, pneumonia, remains to be ascertained.

THE DEFICIENCY DISEASES

The so-called deficiency diseases, that is, diseases produced by a deficiency of the various vitamins, have come in for a good share of consideration. Chemists have continued to analyze the vitamin-containing substances and in some instances have been able to synthesize the vitamin itself, or prepare a substance almost comparable to the purified vitamin. With this accomplished, the clinical investigator is being led to a clearer understanding of the related diseases, and the action of the vitamins toward preventing or curing them.

In some points similar to the vitamin diseases, another group caused by the deficiency or excess of certain chemical substances within the body, and called the endocrin diseases, has continued to focus the attention of many investigators.

TRENDS IN THE USE OF DRUGS

In recent times the trend in therapeutics, which in many ways is the most important phase of medicine, has been away from drugs. Although various sera and vaccines frequently take the place of drug therapy, many of the old-timers are still found indispensable. As, for instance, quinine in the treatment of malaria is one of the most perfect therapeutic agents known; digitalis is extremely valuable in heart disease; the arsenicals and mercurials are invaluable in the treatment of syphilis.

Perhaps one of the greatest privileges a doctor has is the opportunity to allay pain and this for the most part is made possible by the various narcotics, such as morphine, and codeine, and the analgesics, such as aspirin and amidopyrine. Many of these drugs are almost as old as the history of medicine, but every year new information concerning their action is obtained. During the past year some excellent papers have been written on the subject of morphine and codeine. A newer drug, dilaudid, has been used rather extensively and in the hands of some clinicians it seems to be more efficient in the alleviation of pain than is morphine. Amidopyrine, which has been used for a number of years for the relief of pain, particularly in rheumatism, has ben found, during the past year, to be implicated in the causation of a highly fatal disease of the blood, called agranulocytosis. In a large number of cases of this disease the onset has been preceded by the use of this drug and the mortality has been higher when its administration has been continued. This discovery, of course, counts strongly against the us of amidopyrine. Fortunately, there are a number of drugs that give equally beneficial results without the dangerous reactions. A year ago dinitrophenol was reported as a promising agent for raising body metabolism, and thereby bringing about weight reduction. Unfortunately, throughout the present year, there have been reports indicating dangerous reactions to this drug which naturally discourage its use.

INVESTIGATIVE MEDICINE

Although most physicians the world over, in their attitude toward disease and toward their patients, are careful observers and good investigators, nevertheless, in recent years most of the notable advances have come from the work of groups of investigators in hospitals and medical centers. Just like our modern civilization, investigative medicine has become involved in rather a complicated organization, and this should be mentioned as many of the developments of recent times, and the problems attached to them are being attacked by these agencies, as, for example, tuberculosis. Of course, tuberculosis as a problem is a very extensive one. It entails such approaches as (1) the chemistry of the tubercle bacillus; (2) bacteriology of the tubercle bacillus; (3) action of the tubercle bacillus and its chemical constituents on the cells and structures of the animal or human body; (4) epidemiology; (5) pathology; (6) treatment. The problem of tuberculosis, as it presents itself, today, is one far too great to be mastered by any one individual or even any group of individuals. Even each subdivision of the topic, as represented above offers a tremendous undertaking. And so a comprehensive scheme has been worked out whereby specific problems are assigned to different groups of investigators in various parts of the world, where the facilities are greatest for developing that particular phase of the subject. The chemistry of the tubercle bacillus is being worked out in medical institutions in New Haven and Chicago; the action on the body, in New York; the epidemiology, in New York, Philadelphia, a rural district of Alabama, Jamaica, and Austria. This method has the great advantage of preventing overlapping and repetition of effort, and takes advantage of the superiority of certain laboratories and certain localities for carying out certain problems. As time goes on, if the organization does not become too complicated, it should give good results. This method is also being used in the study of cancer and some nervous disorders, as well as of certain infectious diseases other than tuberculosis.

THE DIONNE QUINTUPLETS

One early summer day of this year 1934, there was flashed over the world a piece of medical news that was actually thrilling. An event had occurred (May 28) of historic importance—man, medicine, science had been challenged and come off victorious! Not in a great city, in a famous medical center with last-word equipment and ranks of trained doctors, nurses and technicians ready to welcome them did the little Dionne quintuplets raise their first cry, but in an humble cabin home, in a small French settlement, 200 miles north of Lake Ontario, with one man, who has glorified the name of "doctor," a faithful midwife and a devoted woman friend to witness and aid the miracle. For the first time in medical history, of the 32 known cases, quintuplets had survived more than one hour after birth. Dr. Dafoe has told us that if it had not been for a miscarriage a few months previous there would have been sextuplets, an occurrence that has never been recorded in the life of a human mother.

With wonderful mastery of the situation, Dr. Dafoe summoned to this hidden hamlet the requisite scientific equipment — incubator, resuscitation apparatus, etc., and not only succeeded in bringing all of the quintuplets into the world alive but has further super-intended their infant life to the present age of over six months. It is a remarkable story and best read from his own pen from which we quote: "During the last five hundred years there have been thirty-two authentic cases of quintuplets recorded. Of these, only one group of all five lived about an hour, and of another group, only one of the five lived for fifty days." These were the best records for quintuplets until the remarkable one of this year which may hold the record for 500 years to come.

Dr. Dafoe deserves great credit not only for his medical handling of this remarkable birth but for his sociological wisdom in connection with questions following in its train. His discouragement of newspaper notoriety, exploitation of the case, etc. were in good taste but when he realized that the event was of world-wide interest and importance he gladly gave the particulars to the press, and they, in turn, were of great assistance in securing aid from the outside world.

From one of hundreds of tributes to this man who met an important crisis, turned simple aids to miraculous use, summoned scientific inventions from a distance to the emergency and, in short, mastered the situation, we quote a noted scientist, Prof. Yandell Henderson, who has been instrumental in developing the method of administering an oxygen-carbon dioxide mixture to asphyxiated newborn children: "It shows what a splendid man that Canadian country doctor is that he used the latest and most effective means of keeping those five premature babies alive and won for medicine, science and humanity this great triumph. But it must have kept him busy, with all the rest he had to do, to give repeated inhalations of oxygen and carbon dioxide to five babies born in succession."

This dramatic case seems, on the one hand, to suggest the futility of the superscientific and pseudo-scientific discussion that has been published in recent years on the problem of maternal mortality and infant care, and, on the other, to illustrate the tremendous strides that have been made in recent years in methods of resuscitating, incubating, and nourishing the new-born child. But for these wonderful developments and a knowledge of their use, the successful rearing of these quintuplets would not have been possible.

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PHARMACOLOGY

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AGRANULOCYTOSIS

Agranulocytic angina is a symptom complex, characterized in the more typical cases by ulceration in the throat, severe prostration, fever, reduction of the total number of white blood cells, with marked reduction or almost complete disappearance of the granulocytes. This serious disease has increased markedly in the past few years, parallel with the increase in the general use of a number of drugs containing the benzene group, such as amidopyrine (pyramidon), a common constituent of most pain-relieving mixtures. It is stated (Herz, *J. Lab. Clin. Med.*, 20:33, 1934) that the bone marrow injury results from the formation of a substance chemically related to phenylhydrazine. This blood disorder has also been reported in connection with the use of other substances, such as arsphenamine, nirvanol, and dinitrophenol. The latter is the drug which has been popularized in the past few years for the treatment of obesity.

MERCURY ANTIDOTE

Rosenthal reported interesting experiments on the use of sodium formaldehyde sulphoxylate (*J. A. M. A.*, 102:1273, 1934) in the treatment of bichloride of mercury poisoning. He stated that the effect is due to the reduction of bichloride of mercury to calomel, and showed that the sulphoxylate is relatively non-toxic, reducing the mercury in the intestinal tract as well as after its absorption. About eight months later a similar study was published by Brown and Kolmer (*J. Pharm. & Exp. Therap.*, 52:462, 1934) in which they attempted, by the use of rabbits, to verify the results of Rosenthal. Their conclusions are much less optimistic. They found the antidote considerably more toxic than Rosenthal did, and showed that it became particularly toxic in an animal already poisoned by bichloride of mercury. They failed to find the sulphoxylate useful after the mercuric chloride had entered the circulation, in direct contradiction to the original work, which indicated that the sulphoxylate would save animals even after the intravenous injection of mercuric chloride. Brown and Kolmer do believe that the sulphoxylate may provide a valuable adjunct by oral administration to prevent the absorption of mercuric chloride from the intestinal tract. These two papers mark another episode in the search for antidotes for mercuric chloride poisoning, similar to the one that began some years ago when sodium thiosulphate was introduced as such an antidote, and illustrates once again the extreme caution that must be exercised before one accepts the reports describing cures in poisoning by bichloride of mercury.

MAPHARSEN

Tatum and Cooper (*J. Pharm. & Exp. Therap.*, 50:198, 1934) studied an arsenoxide, which they named mapharsen, as a possible substitute for the arsphenamines in the treatment of syphilis. They obtained results which, they feel, justify its clinical investigation. They found it more potent than arsphenamine, but also a relatively wide margin between the dose which cures experimental syphilis and the one that causes death. Since the arsphenamines are chemical mixtures they require biological standardization. They also undergo rapid oxidation, giving rise to toxic products. The new arsenoxide offers advantages in these respects because it is a pure chemical substance and, on oxidation, becomes less toxic.

CIRCULATION

Wedd and Drury (*J. Pharm. & Exp. Therap.*, 50:157, 1934) studied the effect of nucleic acid derivatives on the coronary circulation of the dog. They found that adenosine, muscle and yeast adenylic acids, and cytidylic acid increase the coronary flow. The duration of the increased flow was only one to three minutes. Similar substances have been recommended for the treatment of angina pectoris with the view of improving the coronary circulation. It does not seem probable, however, that substances possessing such brief actions would be of any practical value. The xanthines, which are closely allied chemically to the above, are also widely used for the relief of cardiac pain. There is some difference of opinion, however, as to the efficiency of these substances. A recent study by Hatcher and Kwit (*J. Pharm. & Exp. Therap.*, 52:430 1934) shows that caffeine and the bromine leave the blood stream fairly rapidly. Stoland *et al.* *(J. Pharm. & Exp. Therap.,* 51:387, 1934) showed increased coronary blood flow for about 20 minutes after therapeutic doses.

Among the effects of pitressin on the circulation, Geiling and coworkers (*J. Pharm. & Exp. Therap.,* 51:18, 1934) observed that the venous blood becomes arterial-like in color. In this study they investigated the possibility of an accelerated blood flow as the explanation. They found, however, that the injection of pitressin causes a marked and fairly prolonged decrease in blood flow in the femoral artery and vein, the carotid artery and jugular vein.

Thevetin, a glucoside obtained from the be-still nut, was investigated by Chen and Chen (*J. Pharm. & Exp. Therap.,* 51:22, 1934). They found that it exerts typical digitalis-like actions on the heart, that it is readily absorbed, and that its action is less persistent.

Meek and Seevers (*J. Pharm. & Exp. Therap.,* 51:287, 1934) showed, in experiments on dogs, that large doses of barbital protect the heart against irregularities produced by ephedrine.

BARBITURATE STUDIES

During the past year Koppanyi and his coworkers published a series of papers in the *Journal of Pharmacology and Experimental Therapeutics,* and the *Journal of the American Pharmaceutical Association,* on a specific and very sensitive test for barbital and its derivatives. By means of this test they studied the fate and behavior of these compounds in the animal and human body. It was confirmed that the kidney plays a large part in the excretion of barbital, but not of other compounds of higher molecular weight, *i.e.,* pernocton, pentobarbital, amytal. Animals with experimentally produced injuries of the kidney behaved very much like animals with both kidneys removed, *i.e.,* they failed to recover from barbital anesthesia, but did recover from anesthesia induced by other members, such as pentobarbital. Normal chickens behave like mammals with damaged kidneys, failing to recover from barbital narcosis, although they recover readily from the effects of the other related drugs. There have been no effective means for hastening the excretion of barbital, but these authors discovered that ammonium chloride greatly enhances the excretion of barbital by kidney, and thus may prove of value in barbital poisoning. It is hoped that the authors will find it possible to continue these significant studies.

ALCOHOL

MacNider (*J. Pharm. & Exp. Therap.,* 50:108, 1934) showed that prolonged intoxication by alcohol in dogs causes organic damage of the liver, although the kidney remains free of injury. A liver function test shows simultaneously diminished hepatic function (phenoltetrachlorphthale in blood curve shows a higher peak and retention of the dye in blood an hour or longer), and the blood shows diminished alkali reserve. He also found that recovery of the hepatic function as well as the acid-base equilibrium are associated with histological recovery of the liver cells.

Studies by Gold and Travell (*J. Pharm. & Exp. Therap.,* 52:345, 1934) showed that although alcohol is an excellent antidote to strychnine, the latter is not very effective in overcoming the toxic effects of alcohol. They confirmed the observations of others showing that the oxidation of alcohol in the body goes on at a rate relatively independent of musuclar activity. These studies give no indication that the duration of alcohol intoxication in man can be materially reduced either by physical exercise or by the injection of strychnine.

SALICYLATE ABSORPTION

Oil of Wintergreen is commonly applied to joints and muscles for the relief of pain. It has been shown repeatedly that some is absorbed through the intact skin. The interesting study by Brown and Scott (*J. Pharm. & Exp. Therap.,* 50:32, 1934) directs attention to some significant facts in this connection, namely, that much less of the salicylate is absorbed when the full strength oil is applied than when the oil is diluted; for example, about seven times as much is absorbed from a dilute aqueous suspension as from full strength oil, and about five times as much from a 50 per cent solution in alcohol. They found, furthermore, that absorption is greater from 50 per cent solutions in mineral oil or lanolin than in olive oil or lard oil, although in 20 per cent ointments absorption was essentially similar in the different vehicles.

ANESTHETICS

Cotui (*J. Pharm. & Exp. Therap.*, 50:51, 1934) showed that procaine injected intracysternally is more toxic in dogs in pathologic states such as pneumonia, infection, hemorrhage, after amyl nitrite and histamine. This study directs attention to some of the dangers of spinal anesthesia.

An intensive study of the actions on dogs of cyclopropane or trimethylene was made by Seevers *et al.* (*J. Pharm. & Exp. Therap.*, 51:1, 1934). They showed that this gaseous hydrocarbon may be used with relative safety for prolonged anethesia. They also showed, among other things, that the gas exerts toxic effects similar to those of ether and that these effects may occur even in the presence of an adequate supply of oxygen.

MORPHINE SUBSTITUTES

The search for morphine substitutes as a means of solving the problem of narcotic addiction has continued under the guidance of the National Research Council. Lyndon F. Small, the research chemist of the University of Virginia who has been synthesizing derivatives of morphine, has recently produced a new member of this group which gives promise of usefulness. Its name is dihydrodesoxymorphine-D (*Science*, 80:10, 1934). It is stated to be ten times as potent as morphine in relieving pain, and relieves the withdrawal symptoms of addicts. The danger lies in the possibility that this drug may itself be habit-forming. This fact remains to be established. Another substance chemically and closely allied to morphine, namely, dilaudid, has been popularized through the work of the committee on the study of narcotic addiction. It is stated by some to be superior to morphine in some respects, but the indications are that it is equally habit-forming.

A large series of pharmacological studies on morphine derivatives have been published during the year by Eddy and others at the University of Michigan.

KIDNEY FUNCTION

It is commonly believed that the motor nerves to the kidney control urinary secretion only through changes in the circulation, although from time to time indications appeared that they also modify the composition of urine by specific action on the kidney cells. Light on this subject was thrown by the experiments of Grabfield and Gray (*J. Pharm. & Exp. Therap.*, 50:123, 1934 and 52:383, 1934). Cinchophen and sodium salicylate increase uric acid excretion in the normal dog. They showed, in experiments on dogs, that after the kidney is denervated these substances cause a marked fall instead of a rise in uric acid execretion.

INTESTINAL MOVEMENTS

There have been several studies (Pal, Plant and Miller, Gruber and Robinson) which show that morphine stimulates intestinal motility in the dog. This was confirmed by the recent study of H. E. Carlson (*Anesthesia and Analgesia*, 13:221, 1934), who concluded from this that morphine would not contribute to post-operative constipation. The latter author appears to have fallen into an error which is quite common in the literature on the pharmacology of intestinal motility. It is well known that morphine causes constipation in man. Analogous facts appear in the study of Melville and Stehle on the effects of pituitary preparations (*J. Pharm. & Exp. Therap.*, 50:165, 1934). It has been observed by several authors that pituitrin decreases intestinal motility in dogs under various experimental conditions. Nevertheless, they found that these preparations in the intact dog almost invariably cause defecation, a fact which would not be anticipated from the results which they and others obtained with loops of intestine.

PITUITARY HORMONES

Preparations of anterior pituitary have been known to cause both maturation of the follicles as well as luteinization in the ovary. A significant contribution to the subject was made by the study of Lawrence (*J. Pharm. & Exp. Therap.*, 51:263, 1934) in which the author succeeded in separating the two fractions possessing these actions. It was found that the follicle-stimulating fraction causes follicular maturation (without ovulation) in addition to growth of the tubular tract, whereas the luteinizing fraction causes marked increase in the blood supply and luteinization of the ovary.

SURGERY

By Frank L. Meleney

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INTRODUCTION

It is worthwhile each year to mention the fact that one cannot be sure of the significance of any surgical event from the experience of a single year. Progress has been made in all of the fields which were mentioned in The American Year Book for 1933 (pp. 832-835) and there is some evidence that certain new fields have been opened up. In this brief review we shall discuss the progress which has been made in the fields of anaesthesia, the surgery of the ductless glands, the study of peripheral vascular diseases and advances in the knowledge and treatment of surgical infections.

ANAESTHESIA

Avertin.—The use of avertin as a basal anaesthetic is now on well established grounds. It is being used extensively not only in the larger clinics but in the smaller hospitals. The precautions that are necessary in its preparation are well understood and its contraindications well known. It diminishes the fear and anxiety of operation and the postoperative discomfort, and permits satisfactory surgical anaesthesia with a minimal amount of superimposed inhalation anaesthesia.

Spinal Anaesthesia.—Spinal anaesthesia is also gaining more general favor. Pantocain produces satisfactory anaesthesia over a period of several hours and seems to be superior to the other spinal anaesthetics previously used largely because of its prolonged effect. The risk with spinal anaesthesia, however, seems to be greater than with avertin anaesthesia, and it is very important that all of the factors of safety be employed if spinal anaesthesia is to be used. One of the newest of these safety factors is a determination of the relative specific gravity between pantocain and the spinal fluid of the patient to receive it. If the pantocain is lighter than the spinal fluid, it tends to rise to the top of the fluid column and there is danger of anaesthetizing the vital centers of the spinal cord. The position of the patient is, therefore, of very great importance, and the danger of anaesthetizing the upper cervical region and medulla may be avoided by knowing beforehand the relative specific gravity of the two fluids. It is extremely important for a well trained anaesthetist to be in attendance when a spinal anaesthesia is given, to give warning when any changes in respiration or pulse rate are indicative of danger. The drop in blood pressure which follows the use of spinal anaesthesia, in the great majority of cases, may be avoided by the previous use of ephedrin and this may also be used to restore the blood pressure if there should later be a fall.

Inhalation Anaesthesia.—Ether is gradually being replaced by safer inhalation anaesthetics, the most recent of which is cyclo-propain. This is a powerful anaesthetic which has to be used in small quantities. Unlike nitrous oxide, cyclo-propain permits the admixture of a large percentage of oxygen which acts as a safety factor in the administration of this new anaesthetic. As much as 80–90% of oxygen may be given and still permit a high degree of relaxation. However, the employment of this new anaesthetic requires the services of one who is well trained in its use because the margin of safety is somewhat narrower than with the other more generally used anaesthetics.

The treatment of postoperative shock has been improved by the more extensive use of gum acacia infusions, although this has not received the wide use that its virtues warrant. The purer preparation which is now available is much more effective than the product which was used during the war, and further experiments make it seem likely that the essential factor in this somewhat complicated chemical may be isolated and used with even better effect than the whole substance. It has been shown also that the gum acacia is maintained in the circulation for a period of several days. It may be detected by the simple expedient of a blood count, when it is found that the ordinary amount of acetic acid fails to destroy the red cells because of the presence of the gum acacia.

SURGERY OF THE DUCTLESS GLANDS

Parathyroid.—It is now well recognized that certain diseases of disturbed calcium metabolism are due to tumors of the parthyroid gland. Two of the most striking of these are the polycystic disease of the bones and the general decalcification of the skeleton. The calcium is rapidly lost in the urine through the kidneys and frequently produces kidney stones. However, there seems to be new evidence that the disease may not be solely in the parathyroid glands but there may be an associated or possibly a primary lesion of the pituitary or adrenal glands. The interrelations of the glands of internal secretion is becoming more clearly understood, both clinically and experimentally. Men working on different phases of this problem have tended to over-emphasize the factor studied or observed by them and they have frequently lost sight of the other factors in correlated phases. For example the gynecologists are more apt to see disturbances which give gynecological symptoms and focus their attention upon the ovaries. Brain surgeons are interested particularly in apparent disturbances of the pituitary while the general surgeon is more apt to observe the abnormalities which develop in the parathyroid or adrenal glands. Certainly a deeper understanding of the whole complicated system will permit more accurate and more logical lines of investigation in this very interesting field.

Hyperinsulinism.—During the past year there has been a clearer understanding of a group of cases which were formerly confused with epilepsy and were frequently seen first by the neurologists. Their symptoms have been better understood since the use of insulin permitted observations of an overdose of that potent substance, which produced a state known as insulin shock. The patient becomes nervous, irritable, somewhat apprehensive and feels cold and clammy, and then may suddenly drop off into a state of unconsciousness. The temperature falls below normal, and the hands and feet become cold. Frequently these attacks come on in the early morning or after a period of fasting when a regular meal has been omitted. A test of the blood sugar at such times reveals a strikingly low percentage, often going down to one-half or even one-third of the normal amount. It has been found that these patients are suffering from hyperinsulinism due to an over-activity of the internal secretory function of the pancreas. In almost every case this is due to an adenoma or multiple adenomas of the islands of Langerhans' in the pancreas. Surgical removal of these adenomas usually dramatically restores the patient to normal within a short time.

Total Thyroidectomy.—The practice of completely removing the thyroid in cases of intractible cardiac decompensation has steadily grown during the past year, and the indications for its use are gradually becoming somewhat clarified. But it is by no means certain as yet just what cases may be expected to profit by this measure, and certainly the experimental study of this operation must be carefully retained in the hands of a relatively small number of careful observers before it becomes a procedure of general use.

Hypersuprarenalism. — There has recently been renewed interest in diseases in which there seems to be an over activity of the suprarenal glands, due either to a general hyperplasia or an actively secreting adenoma. The condition of essential hypertension characterized by high blood pressure, without evidence of kidney disease, has been thought to be due to an abnormal amount of adrenalin in the blood. An effort has been made to decrease this by partial removal of the suprarenal glands. This work is still in the early stages of development and its significance will be more apparent in the next few years.

VASCULAR DISEASES OF THE EXTREMITIES

The clinical and experimental interest in diseases of the blood vessels has continued throughout the past year, and a considerable amount of information has been gathered from many different sources. The diseases may be classified in three different groups: (1) those which are due wholly to vasomotor spasm, (2) those which are due to organic obliteration of the lumen of the vessels, and (3) those which are a combination of the first two. The element of spasm in the organic lesions of the blood vessels is now being more clearly recognized. The intense spasm of the blood vessel which occurs when there is a sudden occlusion by an embolus may play a larger role in the threatened gangrene of the extremity than does the occlusion by the embolus itself. With the improvements in the determination of the element of vessel spasm the indications for its treatment are becoming clarified. It has been well established that there is a segmental distribution of the sympathetic nerves to arteries, so that it is necessary to remove the sympathetic ganglia in order to get the maximum permanent effect of dilatation. An interruption of the peripheral nerves supplying a zone of painful ulceration or gangrene has been found to be a very valuable operative procedure in peripheral vascular diseases. This may be accomplished by cutting the nerve or injecting it with alcohol or by extirpation. This not only removes the sensation of pain but produces a vaso-dilatation of the area supplied by these nerves and thus favors the healing of the ulceration or hastens the spontaneous amputation of a gangrenous part. In cases in which there is a large element of vasospasm these operative procedures are of considerable importance. But there has recently been devised a mechanism, without surgical treatment, which promises to be of considerable importance. This consists in what is known as passive vascular exercise by means of an apparatus for producing, alternately, positive and negative pressure. The diseased member is subjected to alterations in atmospheric pressure varying from 70-100 millimeters of mercury of suction to 20-120 millimeters of positive pressure in brief cycles of time. The negative pressure fills the capillaries with arterial blood and the positive pressure empties the capillaries and venous bed so that it can be filled again by suction. During and after this treatment there is a definite increase in the surface temperature of the part, lasting from 24 to 48 hours. To obtain the best results the treatment must be kept up for several hours daily for a period of several weeks. Those who have used this method feel confident that it is the best therapeutic measure yet devised for stopping pain and threatened gangrene.

Probably the greatest advance during the recent period of general interest in these conditions is the reduction in the incidence of necessary amputation. However, in certain cases this operation is still necessary as a life-saving measure, when the development of collateral circulation cannot keep pace with the obstructive factors in the case, or when an infection gains a foothold. Gangrene, due to the vascular disturbances associated with diabetes, permits conservative treatment very much less safely than gangrene due to other causes. There is growing evidence that the arterial changes in diabetes may be due to an altered fat metabolism, and it is possible that this may be minimized by diminishing the intake of fat in the diet of the diabetic patient.

THE TREATMENT OF INFECTIONS

Bacteriophage.—During the past two years there has been an increased interest in the use of bacteriophage in the treatment of certain diseases caused by organisms which are susceptible to this peculiar lytic process, although the use of bacteriophage has been exploited by commercial houses before the rationale of its use has been definitely established. Workers in this field are gradually bringing more light to bear upon the mechanism of the phenomenon and a better understanding of the factors involved, both in the preparation and the administration of this new agent for fighting infections. It is probable that during the next 5 or 10 years this will come to have more and more significance as a therapeutic agent.

Anaerobic Infections.—During the past few years there has been an added interest in infections due to organisms which do not grow freely in an atmosphere of normal oxygen content but can grow only when the oxygen of their environment has been reduced. These organisms can be cultivated only under conditions which fulfill the essential requirements of their development and have, therefore, frequently been missed by the ordinary method of cultivation. There seems to be some evidence that this very fact may be used in the treatment of these diseases, for it has been found that certain peroxides, (particularly zinc peroxide) have been able to control these infections if they can be applied directly to the tissues involved. This applies particularly to infections with tetanus and gas gangrene organisms, as well as to certain infections with some of the anaerobic bacteria of the mouth, the alimentary canal and vagina. This work is still in the experimental stage and its significance can be determined only by the results obtained in the next few years.

DENTISTRY

By Arthur Taylor Rowe

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RESEARCH INTO CAUSES OF CARIES

The year 1934 has seen no marked changes in dentistry. A continued interest has been evidenced in research with special emphasis on the causative factor of caries. Nutritional studies have been made on the relative importance of diet to caries. Probably the most significant thing that has developed is the growing realization of the probability that no one thing is the cause *per se*, but that there is a multiplicity of factors that play a part in both the cause and arrest of this most prevalent disease.

The necessity for cooperative effort in many of the fields of medicine and dentistry is thus increasingly apparent. Dietary studies that have been made tend to show that what may be an adequate diet for an adult may not be adequate for a child. There is an immense amount of study to be done on the whole subject of caries and its relationships, and support for these activities needs to be found. Considerable money has already been forthcoming and as the projects develop an increased interest is apparent on the part of those able to support such work.

DENTAL LITERATURE

A very definite change is apparent in the current dental literature. There is an increasing number of articles dealing with biologic fundamentals and their relationship to clinical practice. This would seem to indicate that the lag between a revised and extended curriculum and current practice is being taken up.

The subject of dental journalism has been very much to the fore. A committee of the American College of Dentists has been working on the subject of dental periodicals. They have taken a very decided stand against the practice of trade journals serving as the publication medium for the proceedings of dental societies, and their advocacy of independent dental journals is meeting with cordial support in many quarters. The appearance of more dental school student magazines would indicate a healthy attitude in this respect on the part of the colleges.

CURRICULUM SURVEY

The preprofessional training required as a qualification for entrance has differed greatly among the several dental schools. There has been a lack of uniformity in the time requirement for the completion of the course of study leading to the degree of Doctor of Dental Surgery. This lack of uniformity was simply the result of experimentation on the part of the different schools. So much material was added to the essentials of dental training that a revaluation of the emphasis to be given the various subjects was needed. Some schools attempted to reduce course content and retain the original three-year program. Others went to four years and included material in the first year that was properly preprofessional. Still others extended their courses to two years of preprofessional and added a fourth professional year to allow for what they considered adequate training.

With the idea of evaluating the several experiments and determining an adequate minimum, the American Association of Dental Schools formed a committee to make a curriculum survey. This survey was supported by the Carnegie Corporation and presented a full report with recommendations at the 1934 meeting of the American Association of Dental Schools. The Association adopted the report of the Curriculum Survey Committee which recommended, as a minimum, two years of predental work and four years of dentistry. This would seem a rejection of that section of the Carnegie Report of 1926 which proposed for dentistry an undergraduate curriculum of three years and an additional proposal of an optional full graduate year for various types of oral specialization. When the chaotic state of dental education at the time the Carnegie Survey was made is considered, it is remarkable that the findings of the two reports are so nearly in agreement. The Carnegie Report served to effect a great change for the better in dental education and the Curriculum Survey report is in reality an eventuation of the far reaching effects of the primary impetus of the Carnegie Report. Since the American Association of Dental Schools comprises all of the schools that are rated A or B by the Dental Educational Council and the report was adopted with but one dissenting vote, it is probable that in the near future the program of all the schools will be on the two-four minimum basis. Such a plan does not mean duplication of courses, though course content made up a large part of the report. Each school will work out its own programs as to extent, emphasis, and arrangement of material and sequence. It is indicative of the broadened concept of dentistry and a realization of its responsibility in the field of health service.

POSTGRADUATE INSTRUCTION

There is an increasing demand for short courses of instruction for practitioners under university auspices. This very important phase of dental education has been somewhat neglected in the past and such courses as have been available have for the most part been conducted by individuals or by trade houses interested in exploiting some product. The tendency now is toward courses in fundamentals that will enable the individual practitioner to evaluate suggested processes for himself and thus remove experimental uncertainty from practice.

There is a growing conviction on the part of some educators and practitioners of the need of a more specialized training in some phases of dentistry, notably orthodontic and oral surgery. Opinions differ as to how this may be accomplished. In a number of schools clinical orthodontics has been taken out of the undergraduate curriculum and a postgraduate course is offered to train men as specialists in the field. The undergraduate course is confined to diagnosis of beginning irregularities and prevention. As yet there has been no recognition of the specialty as far as licensure is concerned. Possibly a registration of specialists as now adopted in medicine may be the solution.

In oral surgery the question has been raised as to the necessity for a differentiation between dental surgery and maxillofacial surgery. If such a differentiation is made, the question arises as to whether dentistry is a sufficiently broad foundation for the latter, or whether it should be a specialty of general surgery.

REGISTRATION IN DENTAL SCHOOLS

A decrease in the number of students registering for dentistry has been noticeable over the past five years. The total registration for 1928-29 was 8,200. For 1933-34 it was 7,160, with a gradual decrease for the intervening years. The registration of freshman dental students which declined from 1,975 in 1929-30 to 1,637 in 1932-33 increased to 1,876 in 1933-34. The freshman registration for 1934-35 has again fallen off to 1,702 with a total enrollment in all classes of 7,175. This decline may be the result of the economic situation since the cost of a course in dentistry is relatively high. The dental student must provide himself with the instruments necessary for his clinical practice training at a cost variously estimated at from $100 to $120 per year. This, in addition to the tuition, totals an annual cost beyond the reach of many at this time. The schools are becoming more selective in passing on the qualifications of applicants, and with the preparation time about the same as for medicine many men seem to be electing the older profession.

The tendency toward concentration in the urban centers has created a false impression of crowding in the profession in these areas, while the rural population is not adequately supplied. Naturally the present day transportation facilities have enlarged the size of what may be called local areas, so that towns that were once good locations cannot now be so considered. Nevertheless, considering the total number of dentists in this country, the present graduating classes are scarcely large enough to replace the wastage of death and retirement. The increased scope of dental practice and the constantly increasing awareness on the part of the public of the necessity for dental service should make it an attractive field. On the other hand, there is some uncertainty as to what may be the outcome of the agitation for state medicine. The extent and the method may decidedly influence practise of the future and have a marked effect on the desirability of dentistry as a field of endeavor.

LEGISLATION

Changes in existing dental laws have been enacted in 14 states. The new North Dakota law permits dentists to make and sign death certificates and, as does the Iowa law, now permits the dentist to administer and prescribe intoxicating liquors. Illinois prohibits corporations from practicing dentistry. New York requires citizenship for licensure. Connecticut, Delaware, Illinois, Iowa, Nebraska, and Pennsylvania now have statutory provisions permitting acceptance of the findings of the National Board of Dental Examiners.

PUBLIC HEALTH AND HYGIENE

BY IRA V. HISCOCK

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COMPLETION OF REGISTRATION AREAS

The sound conduct of public health work is influenced by information obtained from the analysis of birth and death records, hence the completeness of recording of this data is important. As the result of tests conducted by the U. S. Bureau of the Census, Texas passed the Federal requirements of 90 per cent in birth and death registration in 1933. Hence, 1934 was the first full year in history when these registration areas included all states. (*American Public Health Association Year Book,* 1933-1934, p. 83).

OCCUPATIONAL MORTALITY

As industry has become more complex the problem of safeguarding the health of the worker has gained in interest. Certain occupations are recognized as more hazardous than others, but studies of deaths by occupation have been limited. The principal reports on this subject are those of the British Registrar-General for England and Wales, published every ten years. A valuable report on occupational mortality has been published on the basis of a careful study by the National Tuberculosis Association in cooperation with the U. S. Bureau of the Census. The data included were those of 10 states, comprising 38 per cent of the population of continental United States and 39 per cent of all gainfully employed men. Rates were computed for all occupations in which the number of deaths equalled at least 500, for 17 specific causes of death. Detailed tables show the deaths and rates according to cause, age groups, occupation, and social-economic class. Many interesting deductions may be made from the study. It is noteworthy, for example, that tuberculosis, which numerically has declined to a position of seventh as a cause of death in the general population, is shown here as the second cause of death among occupied males. "The very high rates from tuberculosis among cooks, waiters, and servants in hotels, restaurants, etc., should be a signpost to indicate where industrially a tuberculosis program might be most needed." (Whitney, Jessamine S. *Death Rates by Occupation,* National Tuberculosis Association, New York, 32 pp. 1934).

FOOD VALUE OF MILK

Widespread attention has been given to the problem of adequate feeding of families supported by public and private relief agencies, and it has been recognized that the nutritional needs are best and most economically served when adequate amounts of milk are used. Continued interest has been shown in the nutritive values of raw and of pasteurized milk. Since the effect of pasteurization on the food value of milk is too slight to be apparent even in specially designed experiments, and is not apparent in observation on children living under ordinary American conditions, there is no valid argument, according to McCollum, which can be brought forward in support of the marketing of raw milk for the general population. (Report of the Committee on the Food Value of Milk and Milk Products, International Association of Dairy and Milk Inspectors, 1934).

AMEBIC DYSENTERY

From an epidemic of amebic dysentery occurring in 1933, valuable lessons were later drawn. Cases of this disease were traced to two hotels in one city and carriers of the organism were found among the food-handlers employed. Later, reports were received of cases in other cities and subsequently revealed at least 721 clinical cases in 206 cities, all traceable to these two hotels. The extent of the outbreak was disconcerting since carriers of the pathogenic ameba of dysentery are known to be common but rarely do they produce more than an occasional case. Investigation finally showed that early in the summer defective sewerage arrangements in the hotels in question had caused flooding by sewage of the rooms in which food was prepared, which probably accounted for the severity of the outbreak. The necessity for fundamental sanitary arrangements, the prevalence of carriers of amebic dysentery (5-10 per cent of the population), and the importance of care in the handling of foods to avoid pollution were demonstrated. This epidemic has also directed increased attention to the epidemiolgy of amebiasis. (*Jour. A.M.A.*, Feb. 3, 1934, pp. 367-372; *Engineering News-Record,* June 14, 1934, p. 779; *Jour. A.M.A.,* Oct. 6, 1934, p. 1061).

DIPHTHERIA IMMUNIZATION

Investigations have led to improvements in the preparation of toxoid for immunizing against diphtheria. First in England and later in the health departments of Alabama and other states and cities, bacteriologists, by precipitation with an alum compound, have prepared a toxoid which will generally suffice to produce immunity after a single treatment, (especially in pre-school children) in place of two or three successive injections. Certain problems involved in the universal use of this toxoid are being further studied. (*Am. J. P. H., 24,* 22, Jan., 1934; *Am. J. P. H., 24,* 4, Apr., 1934; *Jour. A. M. A., 103,* 227-229, July 28, 1934; *A. J. P. H., 24,* 11, November, 1934).

POLIOMYELITIS

Further studies of the source and mode of infection in poliomyelitis suggest that the virus is highly neurotropic and finds in the exposed olfactory nervous structures in the nasal membrane a means, apparently the sole means, of entering the central nervous system directly. Evidence is strong that the virus is confined to the human host, and passes from individual to individual in the secretions of the nose and throat. Lower animals living in proximity to man do not act as healthy carriers and accidental transmitters of the virus to human subjects. (*Science,* Mar. 9, 1934, p. 235, and April 27, 1934).

PUBLIC HEALTH NURSING

A significant study of public health nursing by the National Organization for Public Health Nursing revealed that there are approximately 20,000 public health nurses and over 5,000 organizations, official and non-official, in the United States which employ public health nurses. In 1912, when the national organization was founded, there were only 3,000 public health nurses. The report of this study deals in a constructive manner with organization and administration, nursing programs, and quality of performance, as well as with distribution of services. Since the goal in public health nursing, as in any service essential to the well-being of the population as a whole, is a comprehensive community program, the committee of the study strongly recommends that all public health nursing services be carried by as few agencies as possible. A generalized nursing program is considered to be the most economical and effective type of organization because it reduces travel time and permits the nurse to study the family as a unit and to consider each individual in relation to the whole family situation. (Survey of Public Health Nursing, by the National Organization for Public Health Nursing, Commonwealth Fund, 1934).

PHYSICAL DEFECTS OF SCHOOL CHILDREN

An enlightening study into the question of why extreme physical defects in school children remain uncorrected, and of other related problems in school health work, has been completed by the American Child Health Association in cooperation with the New York City Departments of Health and Education and various other agencies. The observations suggest more effective health program planning in schools throughout the country.

The method followed differs from the usual form in that the functioning of the school health system in its corrective phase is investigated rather than the quality or quantity of personnel. It included five general steps: 1. Formulation of specific definitions of what constitute defects in the several health factors; 2. Construction and validation of tests for the identification of children with these severe uncorrected conditions; 3. Selection of children with severe defects; 4. Invertigation of the reasons why these defects had not received attention; 5. Analysis of the errors in the school health program that permitted the defects to remain uncorrected.

Certain generalizations of procedure which are characteristic of efficient school health service are presented on the basis of analysis of the findings. These are discussed in detail in the report, and are as follows: 1. The available facilities both for follow-up and correction should be considered in determining the severity of a selection for follow-up; 2. There should be accurate detection of defect cases with economy of effort; 3. There should be rapport among all the school health personnel; 4. The home visit should be backed by authority; 5. Essential records must be kept alive. (*Physical Defects—The Pathway to Correction,* American Child Health Association, New York, 1934).

VITAL STATISTICS

By T. F. Murphy

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SCOPE OF STATISTICS

For the first time since the establishment of the registration area in 1900, this area now includes all of the states. Statistics on births and deaths are also compiled and published for Hawaii and the Virgin Islands and on mortality for Puerto Rico. The work of the Federal Government in the collection of natality and mortality records by no means ceased with the inclusion of all the states in the registration area, but constant effort is put forth to maintain a high standard of accuracy and completeness of the data it prepares. The data on natality and mortality presented in the following tables relate to the continental United States only and are prepared from data secured from transcripts of the original certificates on file in each state. The results of the tabulation of this information are published annually in two volumes and many special tables.

BIRTH RATES

The birth rate in the continental United States for 1933 is the lowest recorded since the registration area was established in 1915, having decreased from 25.1 in 10 states and the District of Columbia, which constituted the registration area at that time, to 16.6 per 1,000 population in the entire 48 states and the District of Columbia. Likewise, the infantile mortality rate (deaths of infants under one year of age per 1,000 live births) has dropped consistently in the last 19 years from 100.0 in 1915 to 58.1 in 1933. The great reduction in the infant mortality rate is largely due to the cooperation of Federal, state and city health officials with representatives of private agencies and is a magnificent tribute to the combined efforts of organizations interested in infant welfare.

DEATH RATES

The death rates since the annual collection of death certificates and the compilation of the statistics in 1900 have indicated a downward trend in the mortality, the rate having been 17.6 in 1900 to 15.7 in 1906, and 16.0 in 1907 to 14.3 in 1917, 18.1 in 1918 (the year of the influenza epidemic), and then steadily downward to 10.7 in 1933, the lowest on record. These rates were for populations of 30,765,618 in 10 states, the District of Columbia and some 300 cities in 1900, to 125,693,000 in 48 states and the District of Columbia in 1933.

DEATH RATES PER 100,000 ESTIMATED POPULATION FROM PRINCIPAL CAUSES IN THE REGISTRATION AREA IN CONTINENTAL UNITED STATES

Cause of Death	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
All causes (ex. of stillbirths)	1,755.0	1,651.9	1,588.0	1,603.7	1,653.5	1,602.0	1,567.5	1,597.1	1,478.0	1,440.0	1,496.2	1,418.1	1,388.8	1,409.6	1,364.6	1,355.0	1,404.3
Typhoid and paratyphoid fever	35.9	32.3	34.3	34.1	31.7	27.8	31.3	29.5	24.3	21.1	23.5	21.0	16.5	17.9	15.5	12.4	13.3
Smallpox	1.9	3.5	6.6	4.2	2.1	0.9	0.2	0.2	0.2	0.2	0.4	0.2	0.3	0.2	0.3	0.3	0.2
Measles	12.5	7.3	9.5	9.8	11.0	7.5	12.1	10.0	9.9	9.6	12.3	10.0	7.0	12.8	6.8	5.4	11.1
Scarlet fever	10.2	13.1	12.6	12.2	10.8	6.7	7.7	10.0	11.9	11.4	11.6	8.9	6.7	8.7	6.6	3.6	3.3
Whooping cough	12.1	9.7	12.0	15.8	6.5	10.6	15.1	11.3	10.6	9.6	11.4	11.3	9.3	10.0	10 4	8.1	10.2
Diphtheria	43.3	34.0	30.8	31.7	28.3	23.6	25.7	23.6	21.5	20.4	21.4	18.9	18.2	18.9	17.9	15.7	14.5
Influenza and pneumonia (all forms)	203.4	193.6	165.8	173.6	191.6	167.7	155.8	179.9	152.2	150.7	162.1	149.6	142.7	144.8	136.4	149.1	164.3
Influenza	22.9	32.2	10.1	18.5	20.2	18.9	10.3	23.4	21.3	13.1	14.4	15.7	10.3	12.2	9.1	16.0	26.5
Bronchopneumonia (1)	21.9	28.4	31.7	33.5	36.6	34.1	37.3	39.2	35.8	41.3	47.1	44.5	47.1	49.2	48.9	49.9	49.2
Lobar pneumonia	158.6	133.0	124.0	121.6	134.8	114.7	108.2	117.3	95.1	96.3	46.4	48.2	49.7	51.6	56.1	65.8	76.7
Pneumonia, unspecified											54.3	41.1	35.6	31.8	22.4	17.4	12.0
Erysipelas	5.1	4.6	4.2	4.0	5.0	4.4	4.2	4.3	3.9	3.9	4.5	4.2	3.8	4.0	3.8	3.5	3.8
Epidemic cerebrospinal meningitis	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0.4	0.9	2.4	1.9	1.7	1.4	2.2
Tuberculosis of the respiratory system	180.5	174.5	162.6	164.9	176.2	166.7	155.6	154.3	144.0	137.7	136.0	132.7	125.0	123.0	123.5	123.5	119.9
Other forms of tuberculosis	21.4	22.4	21.9	23.6	24.5	25.6	24.6	24.2	23.6	23.4	24.3	26.5	24.7	24.8	23.7	22.8	22.2
Malaria	7.9	6.3	5.4	4.3	4.2	3.9	3.4	2.7	2.4	2.3	2.2	3.0	3.1	2.5	2.2	2.3	3.0
Cancer and other malignant tumors	63.0	64.3	65.1	68.3	70.2	71.4	69.1	70.9	71.5	73.8	76.2	74.4	77.1	79.0	79.6	81.4	82.1
Diabetes mellitus	9.7	10.2	10.3	11.3	12.8	12.9	12.7	13.5	13.4	13.8	14.9	14.9	15.0	15.3	16.2	17.5	17.1
Cerebral hemorrhage and softening	71.5	72.2	72.0	72.0	75.2	74.7	73.1	76.1	71.7	73.9	75.7	76.5	77.5	76.5	79.6	81.2	82.9
Diseases of the heart (3)	132.1	132.6	137.7	143.0	153.4	152.2	148.4	159.7	148.8	151.4	158.8	157.1	159.9	155.8	159.7	165.7	168.7
Bronchitis	45.7	39.7	39.3	36.2	35.8	33.2	29.5	30.0	26.0	23.8	23.4	19.6	19.2	18.0	17.4	17.4	16.2
Diarrhea and enteritis (4)	133.2	113.5	105.0	101.0	110.6	115.7	120.0	113.3	111.6	103.2	117.4	91.2	84.1	90.3	79.6	72.1	79.5
Appendicitis	9.7	10.0	10.0	11.0	11.8	11.9	11.1	10.9	11.3	11.3	11.4	11.7	11.6	12.1	12.3	12.5	12.8
Hernia, intestinal obstruction (5)	12.2	12.6	12.5	13.0	13.3	13.6	13.6	13.3	12.8	12.6	12.4	11.9	11.9	11.6	11.7	11.3	11.3
Cirrhosis of the liver	12.9	13.6	13.9	14.5	15.1	14.7	14.5	15.4	14.3	13.8	13.9	14.0	13.5	13.4	13.0	12.6	12.3
Nephritis	89.0	89.3	90.9	97.3	103.1	103.4	97.5	102.4	93.7	95.2	99.1	97.7	103.2	103.0	102.6	105.1	105.6
Puerperal septicemia	5.7	6.0	5.7	6.1	6.9	6.8	6.2	6.8	7.0	6.7	7.2	7.4	6.5	7.2	7.1	6.3	6.7
Other puerperal causes	7.6	7.7	7.3	7.9	8.4	8.1	8.9	8.8	8.7	8.6	8.5	8.6	8.5	8.6	8.9	9.0	9.6
Congenital malformations and diseases of early infancy	91.8	80.7	82.9	86.2	90.8	89.3	91.7	92.7	90.4	87.5	88.1	93.2	95.4	98.5	95.5	92.1	94.0
Suicide	11.5	12.2	12.7	13.8	14.7	16.0	13.9	15.7	17.8	16.5	16.0	16.3	16.0	15.8	16.6	16.7	14.2
Homicide	2.1	2.3	2.3	2.6	2.8	4.5	5.0	6.3	6.4	5.6	5.9	6.6	6.6	7.2	7.4	7.0	7.1
Automobile accidents (6)	(2)	(2)	(2)	(2)	(2)	(2)	0.4	0.7	0.8	1.2	1.8	2.2	2.9	3.9	4.3	5.9	7.3
Automobile and railroad-train collision	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Automobile and street-car collision	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Other external causes	79.0	88.1	78.1	87.2	86.7	84.0	93 0	93.7	81.2	80.2	82.6	82.4	79.5	81.6	74.4	70.7	76.9
Unknown and ill-defined diseases	73.8	56.4	52.6	44.9	42.0	40.1	38.1	33.6	28.9	24.5	23.1	12.2	11.5	14.1	12.1	11.4	15.2

Cause of Death	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933
All causes (ex. of stillbirths)	1,425.5	1,809.1	1,287.4	1,303.8	1,158.2	1,173.9	1,219.7	1,173.0	1,184.1	1,225.4	1,143.4	1,206.6	1,191.9	1,133.1	1,107.5	1,089.0	1,067.7
Typhoid and paratyphoid fever	13.5	12.6	9.2	7.8	9.0	7.4	6.8	6.7	8.0	6.5	5.5	4.9	4.2	4.8	4.5	3.7	3.6
Smallpox	0.3	0.4	0.4	0.6	0.7	0.7	0.1	0.9	0.7	0.4	0.1	0.1	0.1	0.1	0.1	(7)	(7)
Measles	14.3	10.8	3.9	8.8	4.3	4.3	10.7	8.5	2.3	8.2	4.1	5.4	2.5	3.2	3.0	1.6	2.2
Scarlet fever	4.2	3.0	2.8	4.6	5.3	3.5	3.5	3.1	2.7	2.5	2.3	2.0	2.1	1.9	2.2	2.1	2.0
Whooping cough	10.5	16.9	5.5	12.5	9.1	5.6	9.7	8.2	6.7	8.9	6.9	5.5	6.3	4.8	3.9	4.5	3.6
Diphtheria	16.6	13.9	14.7	15.3	17.6	14.6	12.0	9.3	7.8	7.5	7.8	7.2	6.6	4.9	4.8	4.5	3.9
Influenza and pneumonia (all forms)	167.8	587.0	222.3	208.0	99.3	132.6	152.4	116.7	123.4	143.5	103.2	143.5	147.2	102.7	107.7	107.8	95.6
Influenza	17.3	300.8	98.8	70.9	11.4	31.2	44.3	19.4	29.7	40.8	22.6	45.3	55.5	19.5	26.5	30.8	26.4
Bronchopneumonia (1)	50.6	70.0	47.8	54.5	39.1	44.9	47.3	40.6	38.7	44.0	33.8	39.6	37.6	34.3	33.6	32.6	29.6
Lobar pneumonia	87.3	187.6	66.2	73.0	42.5	50.1	53.7	50.6	49.9	54.0	43.2	53.4	49.5	45.4	44.5	41.2	36.4
Pneumonia, unspecified	12.6	28.6	9.5	9.5	6.2	6.4	7.1	6.1	5.1	4.7	3.7	5.1	4.6	3.5	3.2	3.1	3.2
Erysipelas	3.8	3.2	2.6	3.1	2.8	2.5	2.7	2.5	2.4	2.6	2.4	2.4	2.5	2.1	1.9	1.6	1.6
Epidemic cerebrospinal meningitis	3.9	3.4	1.8	1.6	1.5	1.0	1.0	1.0	1.1	1.3	1.6	2.6	4.5	3.6	2.4	1.4	1.2
Tuberculosis of the respiratory system	124.6	128.6	107.5	97.0	85.6	84.3	81.3	78.0	75.9	76.6	71.4	70.3	67.6	63.4	60.7	56.4	53.6
Other forms of tuberculosis	22.5	21.4	18.1	17.0	13.3	12.1	11.5	11.7	10.8	10.7	9.5	9.0	8.4	8.1	7.5	6.4	5.9
Malaria	3.2	3.1	3.8	3.6	3.6	3.6	2.8	2.4	2.1	1.9	2.7	3.6	3.5	2.9	2.1	2.1	3.7
Cancer and other malignant tumors	82.0	80.3	80.5	83.2	85.6	86.2	88.7	91.1	92.8	95.1	95.7	96.1	95.9	97.2	98.9	102.1	102.2
Diabetes mellitus	17.0	15.9	14.9	16.0	16.3	18.3	17.7	16.4	16.9	18.0	17.5	19.0	18.8	19.0	20.4	21.9	21.3
Cerebral hemorrhage and softening	84.5	81.2	78.6	81.7	80.6	82.9	86.9	88.9	81.0	82.8	80.4	83.4	82.1	81.0	79.1	79.4	75.8
Diseases of the heart (3)	171.7	170.1	146.7	159.1	156.3	164.6	173.8	176.5	185.7	199.5	196.0	208.2	210.8	205.5	201.9	209.1	206.1
Bronchitis	16.4	15.7	12.8	13.2	9.0	9.3	9.0	7.2	6.5	6.6	5.4	5.2	4.7	4.2	3.8	3.6	3.2
Diarrhea and enteritis (4)	79.3	72.7	55.2	54.3	51.4	39.3	39.6	34.5	39.4	33.6	27.6	26.9	23.5	26.3	20.7	16.4	17.2
Appendicitis	12.6	12.2	11.8	13.4	14.4	14.1	14.7	14.8	15.2	15.0	15.0	15.3	15.2	15.3	15.2	14.2	14.1
Hernia, intestinal obstruction (5)	11.6	11.5	10.4	10.6	10.7	10.5	10.4	10.5	10.8	11.2	10.5	10.5	10.6	10.3	10.5	10.2	10.0
Cirrhosis of the liver	11.4	9.6	7.9	7.1	7.4	7.4	7.2	7.3	7.3	7.2	7.5	7.6	7.2	7.2	7.4	7.2	7.4
Nephritis	107.9	97.6	88.1	89.2	85.0	87.9	89.3	88.8	96.5	98.5	92.6	95.2	91.2	90.8	87.2	87.2	83.0
Puerperal septicemia	6.9	6.5	5.8	6.6	6.8	5.7	5.8	5.7	5.5	5.3	5.3	5.0	5.0	4.6	4.6	4.1	3.9
Other puerperal causes	9.8	15.8	11.2	12.5	10.1	9.9	9.7	9.6	9.3	9.1	8.5	8.8	8.2	8.2	7.3	7.0	6.4
Congenital malformations and diseases of early infancy	91.9	92.3	79.9	84.7	83.9	77.7	77.3	77.6	74.0	71.7	67.8	65.8	62.4	60.9	56.5	53.2	50.6
Suicide	13.4	12.2	11.4	10.2	12.5	11.8	11.5	12.1	12.1	12.8	13.3	13.6	14.0	15.6	16.8	17.4	15.9
Homicide	7.7	6.8	7.5	7.1	8.5	8.3	8.1	8.4	8.6	8.8	8.8	8.8	8.5	9.0	9.3	9.2	9.6
Automobile accidents (6)	9.0	9.3	9.4	10.4	11.4	12.4	14.7	15.5	17.1	18.0	19.6	20.8	23.3	24.5	25.2	21.9	23.3
Automobile and railroad-train collision	(2)	(2)	(2)	(2)	(2)	(2)	(2)	1.0	1.2	1.5	1.5	1.8	1.7	1.5	1.4	1.2	1.1
Automobile and street-car collision	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.3	0.3
Other external causes	79.2	73.0	62.5	60.9	56.9	57.1	61.1	58.8	59.7	58.9	57.0	56.3	55.5	54.2	51.6	48.1	47.7
Unknown and ill-defined diseases	18.2	19.2	18.3	17.7	15.9	17.6	17.0	17.5	17.4	17.8	17.6	20.6	20.9	21.0	18.9	17.5	17.5

(1) Includes capillary bronchitis.
(2) Not separately tabulated.
(3) Excludes diseases of coronary arteries.
(4) From 1900 to 1920 includes ulcer of the duodenum.
(5) From 1900 to 1920 includes adhesions of intestines.
(6) Excludes deaths from collision with railroad trains and street cars.
(7) Less than one-tenth of 1 per 100,000 population.

NOTE:—Rates from 1920 computed on population estimates based on the censuses of 1920 and 1930.

Although the total death rates almost steadily declined in the 34 years, the mortality from certain causes materially increased, *e. g.*, diseases of the heart, from 132.1 per 100,000 population in 1900, to 206.1 in 1933, and cancer and other malignant tumors, from 63.0 in 1900 to 102.2 in 1933.

NATALITY AND MORTALITY, BY STATES, 1933

Area	Continental United States							
	Live Births		All Deaths		Deaths Under 1 Year		Still Births	
	Number	Per 1,000 Estimated Population	Number	Per 1,000 Estimated Population	Number	Per 1,000 Live Births	Number	Per 1,000 Live Births
UNITED STATES	2,081,232	16.6	1,342,106	10.7	120,887	58.1	77,059	3.7
Alabama	59,338	22.0	27,104	10.0	3,865	65.1	2,811	4.7
Arizona	8,125	17.9	5,539	12.2	905	111.4	248	3.1
Arkansas	35,800	19.1	16,597	8.9	1,946	54.4	1,394	3.9
California	75,036	12.4	68,036	11.2	4,027	53.7	2,011	2.7
Colorado	17,180	16.3	11,961	11.4	1,183	68.9	547	3.2
Connecticut	22,437	13.6	17,444	10.6	1,087	48.4	624	2.8
Delaware	3,922	16.3	3,309	13.7	237	60.4	153	3.9
Dist. of Columbia	9,955	20.1	7,872	15.9	669	67.2	433	4.3
Florida	25,666	16.5	18,759	12.1	1,614	62.9	1,452	5.7
Georgia	60,984	20.9	31,194	10.7	4,070	66.7	3,501	5.7
Idaho	8,557	19.1	4,056	9.1	404	47.2	202	2.4
Illinois	107,910	13.8	82,513	10.5	5,284	49.0	3,219	3.0
Indiana	50,480	15.3	38,009	11.5	2,675	53.0	1,356	2.7
Iowa	39,575	15.9	25,665	10.3	1,911	48.3	1,121	2.8
Kansas	30,755	16.2	19,613	10.3	1,646	53.5	806	2.6
Kentucky	55,325	20.9	28,520	10.8	3,213	58.1	1,988	3.6
Louisiana	39,748	18.5	23,112	10.7	2,785	70.1	1,995	5.0
Maine	15,123	18.9	11,102	13.8	1,002	66.3	559	3.7
Maryland	27,440	16.5	20,610	12.4	1,805	65.8	1,773	6.5
Massachusetts	63,445	14.7	50,811	11.8	3,299	52.0	2,152	3.4
Michigan	80,923	16.0	48,536	9.6	4,090	50.5	2,784	3.4
Minnesota	44,514	17.2	25,306	9.8	2,120	47.6	1,213	2.7
Mississippi	44,274	21.6	21,666	10.6	2,818	63.6	2,147	4.8
Missouri	57,277	15.6	42,521	11.6	3,176	55.4	2,168	3.8
Montana	8,953	16.7	5,212	9.7	461	51.5	235	2.6
Nebraska	24,185	17.4	12,924	9.3	1,193	49.3	641	2.7
Nevada	1,353	14.5	1,233	13.3	99	73.2	42	3.1
New Hampshire	7,385	15.7	6,491	13.8	413	55.9	268	3.6
New Jersey	56,061	13.4	43,497	10.4	2,597	46.3	2,031	3.6
New Mexico	12,304	28.4	5,824	13.4	1,674	136.1	361	2.9
New York	187,158	14.4	148,455	11.5	10,026	53.6	7,983	4.3
North Carolina	75,422	23.0	30,547	9.3	4,977	66.0	3,120	4.1
North Dakota	13,189	19.2	5,463	8.0	791	60.0	368	2.8
Ohio	95,783	14.1	73,054	10.7	5,049	52.7	3,140	3.3
Oklahoma	43,697	17.8	20,309	8.3	2,466	56.4	1,126	2.6
Oregon	12,223	12.4	10,450	10.6	493	40.3	325	2.7
Pennsylvania	157,046	16.0	106,109	10.8	8,391	53.4	5,551	3.5
Rhode Island	10,352	14.7	7,895	11.2	575	55.5	291	2.8
South Carolina	40,319	23.1	19,356	11.1	3,154	78.2	2,376	5.9
South Dakota	12,859	18.3	6,104	8.7	705	54.8	285	2.2
Tennessee	50,148	18.8	28,123	10.6	3,473	69.3	2,141	4.3
Texas	107,950	17.9	58,948	9.8	8,155	75.5	4,144	3.8
Utah	11,910	23.0	4,384	8.5	567	47.6	255	2.1
Vermont	6,131	17.0	4,621	12.8	325	53.0	192	3.1
Virginia	51,254	21.0	28,454	11.7	3,513	68.5	2,200	4.3
Washington	20,882	13.1	16,705	10.4	811	38.8	446	2.1
West Virginia	36,263	20.4	16,605	9.4	2,472	68.2	1,352	3.7
Wisconsin	50,409	16.8	29,513	9.9	2,446	48.5	1,445	2.9
Wyoming	4,207	18.2	1,975	8.5	230	54.7	84	2.0
Alaska	....	..	....	....	....	....	....	....
Hawaii	....	....	....	....	....	....	....	....
Porto Rico	....	....	....	....	....	....	....	....

The decreases in death rates for 1933 are principally in those causes included in the following groups; infectious and parasitic diseases, diseases of the respiratory system and diseases of the genitourinary system. The decrease in the first of these groups is largely accounted for by the lesser number of deaths from influenza and tuberculosis. In the second group, the decrease is attributable mainly to the lower rates for the pneumonias, and the decrease in rate for the third group is due to the decline during the past few years in the death rate from chronic nephritis. A number of other causes contribute to the decreased death rate, as those due to pregnancy, childbirth and the puerperal state, and to violent and accidental deaths. These decreases are not due to the great advance made in any single field of medicine, though preventive medicine has probably played the greatest part, in as much as typhoid fever, smallpox, scarlet fever, whooping cough, diphtheria, malaria, and diarrhea and enteritis have shown consistent decreases during the past few years. The remarkable decrease in tuberculosis of the respiratory system, from 180.5 in 1900 to 53.6 in 1933, is worthy of special comment.

The work of the Federal Government in the collection of natality and mortality records by no means ceased with the inclusion to all the states in the registration area, but constant effort is put forth to maintain a high standard of accuracy and completeness of the data it prepares.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

ACADEMY OF MEDICINE, 2 E. 103rd St., New York City, N. Y.

ALLIANCE AGAINST FRAUD, 36 W. 44th Street, New York City.

ALLIED DENTAL COUNCIL, 425 Lafayette St., New York City.

AMERICAN ACADEMY OF APPLIED DENTAL SCIENCES, 587 Fifth Ave., New York City.

AMERICAN COLLEGE OF SURGEONS, 40 E. Erie St., Chicago, Ill.

AMERICAN GYNECOLOGICAL SOCIETY, 104 S. Michigan Ave., Chicago, Ill.

AMERICAN HEART ASSN., INC., 450 Seventh Ave., New York City.

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AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY, INC., 145 W. 58th St., New York City.

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AMERICAN OSTEOPATHIC ASSN., 844 Rush St., Chicago, Ill.

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DIVISION XXIV

PHILOSOPHICAL AND SOCIAL SCIENCES

PHILOSOPHY

By Chester Townsend Ruddick

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GENERAL

If there is any department of Philosophy which shows more activity than the others in 1934 it would seem to be the Philosophy of Science. There is a considerably increased interest, however, in philosophic aspects of social theory, although the published research in this field is not so plentiful. The program for the annual meeting of the Eastern Division of the American Philosophical Association proposes a symposium on the topic "The Future of Liberalism." This may be a reflection of the European interest in the subject, indicated by the program of the Eighth International Congress of Philosophy, held at Prague, Sept. 2-7, 1934, which lists several meetings devoted to such questions as "The Crisis of Democracy" and "The Mission of Philosophy in these Times." The only other general remark to be made concerns the number of investigations into the development of Philosophy in this country. That interest in this particular field of historical research is growing is apparent from the list of publications cited later.

TEXTBOOKS AND TRANSLATIONS

No great amount of new material for class-room use has been provided this year. No subject has been favored with more than one new textbook. In Logic, which has done very well in the last few years, there is Cohen and Nagel's *An Introduction to Logic and Scientific Method* (Harcourt, Brace), a work which is to some extent critical as well as instructive. There is, besides, a new and revised edition of T. Crumley's *Logic, Deductive and Inductive* (Macmillan), a text in the neo-scholastic tradition. Introductions to Philosophy, of which there are frequently many, are equally scarce, the only one being that of L. G. Rohrbaugh, *A Natural Approach to Philosophy* (Noble and Noble), modelled on the earlier *Introduction* of G. T. W. Patrick.

Teachers of the history of Philosophy will have nothing new to deal with in the way of secondary materials. They can be grateful, though, for M. C. Nahm's *Selections from Early Greek Philosophy* (Crofts) which contains the fragments and selections from the doxographical material, with brief notes as an aid to understanding. Particularly important is the fact that the sources for Democritus, hitherto untranslated, have been put into English for this volume by G. H. Clark. Another work of the same sort is T. V. Smith's *Philosopher's Speak for Themselves* (Univ. of Chicago), which covers the period from Thales to St. Augustine. The publication of this work is evidence of the growing tendency to use source material for text purposes.

There are a few other translations of considerable importance. The most ambitious is the English version of Kant's *Religion within the Limits of Reason Alone* (Open Court) by T. M. Greene and H. H. Hudson, with an introduction by Greene. Another which provides source-material in a form suitable for class use is *Leibniz: Philosophical Writings* (Everyman's) selected and translated by Mary Morris, introduction by C. R. Morris. There is, besides, C. C. Riedl's translation, *On Being and Essence,* by St. Thomas Aquinas (St. Michael's College, Toronto).

HISTORY OF PHILOSOPHY

Modern. — Products of historical research have been fairly numerous. Of greatest interest to some who are anxious to understand the past products of Philosophy is *The Philosophy of Spinoza,* by H. A. Wolfson (Harvard Univ.). This two volume work sets itself the task of comparing the Benedictus de Spinoza of the carefully planned *Ethics* with the Baruch whose mind was filled with the thoughts and philosophic attitudes of those who had preceded him. Actually, it tries to establish relationships between the formal doctrines of Spinoza's *Ethics* and the content of the philosophic literature which might have been available to Spinoza, the student. Additional Spinoza material is to be found in W. Bernard's *Philosophy of Spinoza and Brunner* (Spinoza Inst. of America, Inc.). Another two-volume historical work of some importance is C. W. Hendel's *Jean - Jacques Rousseau: Moralist* (Oxford Univ.). An interesting article on an important problem in the history of modern philosophy is that of M. C. Moore, "The Place of A. A. Cournot in the History of Philosophy" (*Phil. Rev.,* XLIII, 4).

American. — Consciousness of the need to develop and support the tradition of a native philosophy has been responsible for considerable research in recent years. This year has not been without its contributions. The most comprehensive of these is H. G. Townsend's *Philosophical Ideas in the United States* (American Book Co.). It traces the development of special attitudes toward Philosophy from Colonial times to John Dewey, and to some extent attempts to account for them. A single American thinker is presented in Buckham and Stratton's *George Holmes Howison, Philosopher and Teacher* (Univ. of Calif.), which contains selections from his writings and a biographical sketch. Another is dealt with in articles by R. Suter on "The Problem of Evil in the Philosophy of Jonathan Edwards" (*Monist,* XLIV, 2) and "The Concept of Morality in the Philosophy of Jonathan Edwards" (*Journal of Religion,* XIV, 3).

This might be the place to mention the latest analysis of the philosophy of a contemporary writer, *The Philosophy of John Dewey,* by W. T. Feldman (Johns Hopkins). It is primarily concerned with the motives underlying the development of Dewey's thought, which result, it is decided, in a complexity of attitudes rather than in any one to which may be given a school name. We have also an opening gun in the inevitable struggle to understand and interpret the philosophical system of the originator of American pragmatism. This is E. Freemen's small book, *The Categories of Charles Peirce* (Open Court). Students of the pragmatist movement have, at last, access to nearly all that Peirce wrote on that subject. The fifth volume of the *Collected Papers of Charles Peirce,* edited by Weiss and Hartshorne (Harvard Univ.) made its appearance in 1934, presenting all of the previously published papers on pragmatism as well as a great quantity of hitherto unpublished material. Its title is *Pragmatism and Pragmaticism.*

Greek. — Ancient philosophy has not been neglected. Of the individual Greeks, Plato has received the most attention. One aspect of his philosophy is treated by Katherine Gilbert in "The Relation of the Moral to the Aesthetic Standard in Plato" (*Phil. Rev.,* XLIII, 3). Other studies on Plato are those of the late Theodore de Laguna, which have been published as follows: "Notes on the Theory of Ideas" (*Phil. Rev.,* XLIII, 5), "Burnett's Socrates" (*Mind,* XLIII, 169), and "The Problem of the Laches'' (*Mind,* XLIII, 170). *The Platonic Legend* by W. Fite (Scribner) deals with questions which concern a proper understanding of Plato's *Republic.* Constantin Ritter's *Kerngedanken der Platonischen Philosophie,* a condensation of his monumental two-volume work on Plato, has been made available for use in English-speaking countries in the translation of Adam Alles, *The Essence of Plato's Philosophy* (Dial).

An equal service has been done for the students of Aristotle. R. Robinson gives us Werner Jaeger's *Aristotle, Fundamentals of the History of his Development* (Oxford Univ.), with corrections and additions by the author. Original research on Aristotle is represented by the article of G. H. Clark, ''Spontaneity and Monstrosity in Aristotle'' (*New Schol.,* VIII, 1) and the monograph of A. Edel, *Aristotle's Theory of the Infinite.*

METAPHYSICS

Metaphysics proper has drawn few contributions. Certain important items which deal with subjects that are relevant may be mentioned. P. Weiss opposes the positivistic movement with an argument for the necessity of metaphysics, as he understands it,—''Metaphysics, the Domain of Ignorance'' (*Phil. Rev.,* XLIII, 4). *Nature and Life,* by A. N. Whitehead (Univ. of Chicago), presents two lectures which are introductory to the metaphysical system which Professor Whitehead calls the ''philosophy of organism.'' N. P. Stallknecht's *Studies in the Philosophy of Creation* (Princeton Univ.) gives credit to Bergson and Whitehead for the most acceptable treatments of the subject, while finding fault with some others. E. A. Singer, Jr., in ''Beyond Mechanism and Vitalism'' (*Phil. of Science,* I, 3) prepares the way for a philosophy of nature which may be called ''naturalistic,'' which has its roots in Kant, and which may be characterized by its acceptance of two postulates which had been previously taken to be incompatible—''Everything in Nature is structural in nature'' and ''Some things in Nature are non-structural in nature.''

EPISTEMOLOGY

The idealist-realist controversy has continued to occupy its full share of space in the journals. And the problem about which the discussion turns still seems to be the same, that of knowing who is which. C. Barrett, H. R. Smart, J. B. Pratt, G. A. Wilson, and J. S Moore deal with this question in one way or another in the *Journal of Philosophy* (no.'s 7, 8, 1934). W. T. Stace, in ''The Present Dilemma in Philosophy'' (*J. Phil.,* XXXI, 14) attempts to put the burden of the proof concerning the status of mind on the realist. The realistic position is developed in quite different ways by J. E. Boodin, in ''Functional Realism'' (*Phil. Rev.,* XLII, 2) and D. C. Williams in two papers, ''The Argument for Realism'' (*Monist,* XLIV, 2) and ''Truth, Error, and the Location of the Datum'' (*J. Phil.,* XXXI, 16). E. Nagel, in ''Verifiability, Truth, and Verification'' (*J. Phil.,* XXXI, 6) and C. I. Lewis, in ''Experience and Meaning'' (*Phil. Rev.,* XLIII, 2) deal with questions which have been becoming increasingly important for fundamental investigations in epistemology.

Mention might be made here of C. Hartshorne's book, *The Philosphy and Psychology of Sensation* (Univ. of Chicago) which proposes to reform psychology by introducing the notion of an ''affective continuum'' in terms of which sensation is to be dealt with from the qualitative standpoint. The same writer has two articles written in the same spirit,—''The Intelligibility of Sensation'' (*Monist,* XLIV, 2) and ''The Parallel Development of Method in Physics and Psychology'' (*Phil. of Science,* I, 4).

LOGIC AND PHILOSOPHY OF SCIENCE

The Philosophy of Science, a discipline which is being chosen by many as the most fruitful field of endeavor from the point of view of progress of a constructive sort in Philosophy, has shown a great deal of activity in 1934. One form which this activity has taken is the establishing of the Philosophy of Science Association, with headquarters at present in Philadelphia, and the founding of its journal, *The Philosophy of Science,* published quarterly, and edited by W. M. Malisoff, with the assistance of editorial and advisory boards made up of prominent philosophers and scientists of America and Europe. In less than a year, the Association membership has reached 700, of which 200 are institution members.

Books in logic, with the exception of texts already mentioned, have been notable for their absence. Equivalent to a book, because of the terseness of its language and the extent of its symbolic formulation, is H. B. Smith's article, "Abstract Logic or the Science of Modality" (*Phil. of Science,* I, 4). It offers a solution of the most general problem of logic, that of constructing "all propositions whose truth is independent of any specific meaning which the terms may have." A few articles have been published dealing with problems of logic for its own sake. Among them may be mentioned E. V. Huntington's "Independent Postulates Related to C. I. Lewis's Theory of Strict Implication" (*Mind,* XLIII, 170) and L. Kattsoff's "Concerning the Validity of Aristotelian Logic" (*Phil. of Science,* I, 2). The latter is concerned with the generally accepted "breakdown" of the Aristotelian logic, and the problem of the existent import of propositions, emphasizing particularly the proposal of H. B. Smith that the Aristotelian logic may be preserved intact, if only the definitions of its fundamental relationships be extended. In the early part of the year there was a spirited discussion carried on in several numbers of the *Philosophical Review* by D. H. Parker, L. Kattsoff, and R. F. A. Hoernle, over the question of reflexive relations.

Closely allied to problems of logic and to the philosophy of science, and receiving a great deal of attention this year, is the investigation of the foundations of induction and of probability. In "Probability and the Philosophic Foundations of Scientific Knowledge" (*Phil. Rev.* XLIII, 3) B. Ginzburg points out the limitations surrounding formulations reached by probability methods, and, by adopting a view toward reality which makes it a sort of limiting conception, is enabled to say that causality is in no danger from probability. Two other writers, G. T. Kalif in "The Metaphysical Foundations of Induction" (*J. Phil.,* XXXI, 4) and H. Feigl in "The Logical Character of the Principle of Induction" (*Phil. of Science* I, 1) find quite opposite grounds for their rejection of the probability theory of induction. With the former, objection is taken to the separation of induction from metaphysics, on the ground that metaphysics is made necessary to any theory of induction by the requirement of the identity of self. For the latter, the probability theory of induction should be discarded in favor of a pragmatic view of the process. A mathematical paper to be considered by philosophers interested in these problems is D. J. Stuik's "On the Foundations of the Theory of Probabilities" (*Phil. of Science* I, 1) which tries to establish an acceptable basis for a mathematical theory. It concludes by the way that "there is no absolute discrimination between statistical and causal phenomena."

The problem of causality with which the matter of probability has come to be so intimately connected is treated variously by several writers. E. W. Hall, in "Time and Causality" (*Phil. Rev.* XLII, 4) is looking for a theory of time adequate for a proper treatment of causality. H. Margenau's "Meaning and Scientific Status of Causality" (*Phil. of Science* I, 2) arrives at the conclusion that quantum mechanics does not constitute an argument against causality, properly understood.

Other papers of note in the general field of the philosophy of science because of their concern with foundations are A. C. Benjamin's "The Mystery of Scientific Discovery" (*Phil. of Science* I, 2), W. Bender's "The Method of Physical Coincidences and the Scale Coordinate" (*Phil. of Science* I, 3), and W. M. Malisoff's "An Examination of the Quantum Theories" (*Phil. of Science* I, 1, 2, 4).

Books on these subjects are scarce. W. F. G. Swann's pleasantly written *The Architecture of the Universe* (Macmillan) is a semi-popular cosmological work. F. J. Sheen's *Philosophy of Science* (Bruce) is by a well-known neoscholastic writer. H. Weyl's Cooper Foundation Lectures, *Mind and Nature* (Univ. of Pennsylvania) provides an example of an eminent scientist out of his depth in philosophy.

ETHICS AND ESTHETICS

In the field of Ethics three books have appeared during the year, all of them intended to be constructive in nature. A. K. Rogers, in *Ethics and Moral Tolerance* (Macmillan), concludes that a thorough-going tolerance is practically, if not theoretically impossible. T. V. Smith's *Beyond Conscience* (McGraw) attempts to put ethics on a purely positive empirical basis. H. L. Mencken, who began his literary career by taking philosophy seriously, has come back to his first love with *A Treatise on Right and Wrong* (Knopf), which is a rather elementary rehashing of very old questions. Two papers of significance are "A Defense of Hedonism," by W. Savery (*International J. of Ethics* XLV, 1) and "Pleasure and Social Justice", by W. T. Stace (*Philosopher*, XII, 3).

Rather than introduce another heading to cover a single title, we may mention here J. Dewey's Terry Lectures, published under the title *A Common Faith* (Yale Univ.). The faith which should be common to all religions and is the essence of true religion is faith in ideals which can command the support of intellect.

Another of Mr. Dewey's works must be mentioned in connection with the developments in Esthetics. This is *Art and Experience* (Minton, Balch), which extends the scope of application of its author's general position by bringing art into the fold with the rest of experience. This and A. K. Coomaraswamy's *Transformation of Nature in Art* (Harvard Univ.), are the only books in esthetics which the reviewer has noticed. And C. C. Pratt's article on the "Objectivity of Esthetic Value" (*J. Phil.* XXXI, 2), which includes an account of tests given to determine objectivity by comparing responses to varied stimuli, is the only shorter piece. W. A. Hammond's *Bibliography of Aesthetics, etc. from 1900 to 1932* (Longmans), which appeared first in 1933, returns again in a revised and enlarged edition. Further bibliographical material is provided by G. Belknap,—*A Guide to Reading in Aesthetics and Theory of Poetry* (Univ. of Oregon).

SOCIAL PHILOSOPHY

An Introduction to Pareto, by Homans and Curtis (Knopf) along with the translation of Pareto's work *Trattato di Sociologia generale,* the English title of which will be The Mind and Society (Harcourt, Brace) and is promised for this year, will provide further grist for the mill of the critic of social theories. L. Mumford's *Technics and Civilization* (Harcourt, Brace) is enlightening on the problem of the place of the machine age in the development of society. A new source book, *Social Reformers* (Macmillan), edited by D. O. Wagner, will be a convenient stepping-stone to an almost first-hand knowledge of how these problems which concern the philosophic status of society have been treated in the past. *A Philosophic Approach to Communism* by T. B. Brameld (Univ. of Chicago) is adequately described by its title. While these seem to be the only books which indicate a definite interest in social theories, it seems, nevertheless, as though the subject is very much on the philosophic mind, as some aspects of it are on almost every mind in this rather troubled year.

NEO-SCHOLASTICISM

Adherents to the scholastic tradition in philosophy have made several contributions toward the development of that school of thought. The volume, *The Philosophy of Society* (Dolphin Press), a collection of papers read at the ninth annual meeting of the American Catholic Philosophical Association, edited by C. A. Hart, is an expression of the interest in social conditions and developments which they share in common with philosophers in general. Critical works from the scholastic point of view include J. M. Marling's *Order of Nature in the Philosophy of St. Thomas Aquinas* (Catholic Univ.) and, among others, two papers in *The New Scholasticism* dealing with Kant. These are A. W. Levi's "Scholasticism and the Kantian Aesthetic" and A. E. Gleason's "A Critique of Kantian Autonomy" (*New Schol.* VIII, 3). The former of the two articles finds that the Kantian theory of the beautiful has a great deal in common with scholastic views on the same subject. The second concludes that the Kantian principles in ethics lead to all sorts of "pernicious conclusions." Another article, "The Rôle of Theory in Modern Physics," by K. F. Hertzfeld (*New Schol.* VIII, 4) argues that the methods of modern physics are very similar to those of great scholastic philosophers treating of natural philosophy.

Those who are particularly interested in medieval philosophy will be glad to know of the institution of graduate courses in medieval studies at the University of Notre Dame, where a program is being worked out under the direction of the Rev. Philip Moore, with the assistance of M. Etienne Gilson. Research work in medieval sources, with its consequent studies on medieval writers and their works, and editions of works hitherto unedited or in need of revision and critical treatment should be important for the progress of philosophy.

MEETINGS

The Western Division of the American Philosophical Association held its 35th annual meeting at Indiana University, March 29-31, 1934. Abstracts of the papers read are published in the *Journal of Philosophy* (XXXI, 10). The other two divisions hold their meetings late in the year. A report of the 10th annual meeting of the Pacific Division, held at the University of California at Los Angeles and the University of Southern California, Dec. 28-30, 1933, is given in the *Journal of Philosophy* (XXXI, 5). The 35th annual meeting of the Eastern Division, Amherst College, Dec. 28-30, 1933, is reported in the *Journal of Philosophy* (XXXI, 4). The American Catholic Philosophical Association met for the ninth year at Pittsburgh, Dec. 28-29, 1933. The papers are published in a volume, *Philosophy of Society* (Dolphin Press) already mentioned.

American Philosophy was well represented at the Eighth International Congress of Philosophy at Prague, Sept. 2-7, 1934, with eight speakers listed on the program. Their names and titles of their papers follow: A. F. Liddell, "Religion and Philosophy"; T. V. Smith, "Norm and Fact in Sociology"; C. Morris, "Pragmatism and the Logical Positivists"; R. F. Flewelling, "Quanta and the Absolute"; E. Nagel, "Reduction and Autonomy in the Sciences"; W. P. Montague, "Democracy at the Crossroads"; G. R. Morrow, "What is left of Liberalism?"; C. Kruse, "Is Subjectivism in Value Theory compatible with Realism and Meliorism?" A full report of the Congress has been given by E. Nagel (*J. Phil.* XXXI, 22).

BIBLIOGRAPHY

This year marks the initial appearance of the annual *Bibliography of Philosophy* undertaken by the *Journal of Philosophy* to supplement the *Bibliography of Philosophy for 1900-1932*, which is in preparation under the auspices of the American Philosophical Association. The *Bibliography* for 1933 appeared as a double number of the periodical (*J. Phil.* XXXI, 17-18). It lists 1244 titles of books and articles published in English, French, German and Italian, classified by subject and given under the author's name.

PSYCHOLOGY

By Wilbur S. Hulin

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GENERAL

Current Trends. — The scientific task of psychology is to observe the nature of consciousness and of modified behavior. In recent years the observation of behavior has received an increasing emphasis due to the greater objectivity of this type of event. At the present time a still greater specification of the problems of psychology is in progress; the two most specific requirements for a well trained psychologist consist of a thorough biological preparation and a facility in the use of social statistics.

Meetings.—The American Psychological Association held its annual meeting at Columbia University, Sept. 5-8. The presidential address by J. Peterson was concerned with the topic of ''Learning'' (see *Psych. Rev.*, Jan., 1935). Other papers included Yerkes' review of ''chimpanzee-culture and psychobiological research'' at the Yale laboratory. H. G. Seashore revealed the fact that there is no simple ''tone pitch'' in singing, but the timbre of the voice produces the effect of true pitch. D. Wechsler distinguished three types of mental deficiency: intellectual, emotional and moral. C. W. Darrow showed that in ''galvanic skin reflexes'' the resistance measured does not vary directly with the production of perspiration, as has been thought. Two programs of motion pictures were presented which included records of animal and child behavior, illusions and physiological changes such as the functioning of the vocal cords. The meeting of the Southern Society for Philosophy and Psychology, at which R. M. Dorcas presided, included among other papers, an experimental report by O. H. Mowrer on ''visual factors influencing the duration of post-rotational nystagmus'' in pigeons; such factors included the intensity of the visual contrasts present in the environment during and after rotation.

Deaths.—Prof. H. C. Warren died Jan. 4. He had just completed *A Dictionary of Psychology* (Houghton, Mifflin). J. M. Baldwin, long associated with the genetic aspect of psychology, died Nov. 8. B. Rand, compiler of historical psychology, died Nov. 9.

General Theory.—A thorough review of the ''trends of modern psychology'' has been prepared by F. L. Goodenough; the early interest in sensation and perception has given place to topics concerning biological functions, and most recently there has been a trend to industrial and personnel problems. (*Psych. Bull.*, Feb.). H. Cason has outlined a systematic viewpoint, called ''organic psychology'' (*J. Phil.*, Nov.). Following the current critical attitude toward the old structural school of psychology, P. M. Zoll has suggested that the concept of ''the pluridimensionality of consciousness'' is disputed by the actual descriptions of ''immediate experience'' which, instead, reveal unidimensionality (*Amer. J. Psych.*, Oct.). C. G. Jung has presented a more general view of his genetic theory of psychological motives in *Modern Man in Search of a Soul* (Harcourt, Brace).

Textbooks.—W. B. Pillsbury has revised his *Fundamentals of Psychology* (Macmillan), and R. S. Woodworth has revised his *Psychology* (Holt). In his textbook on *General Experimental Psychology*, A. G. Bills has broadened the scope of the so-called ''experimental psychology'' to include all of those fields in which experimental research has actually been taking place, rather than to retain the older restriction of the subject to the psychophysical type of problem; much consideration is given to the measurement of learning and the testing of intelligence (Longmans). An important *Handbook of General Experimental Psychology* has been published under the editorship of C. Murchison; 20 of the leading physiologists and psychologists of America have contributed to the book (Clark Univ. Press). G. M. Smith has contributed one of the new type of pedagogical devices, called a *Workbook in Psychology;* the book consists of a progressive series of essay topics and test questions around which the student may organize his information (Holt). H. H. Remmerer and G. C. Brandenburg have also published a *Syllabus Work Book* in psychology (Macmillan).

SENSATION AND PERCEPTION

Vision.—D. Katzin and E. Murray have discovered that there is considerable "instability in color-naming in normal and anomolous observers:" the significant conclusion was drawn that no basic sensory standards of the component color valences is as yet possible (*Amer. J. Psych.*, Oct.). M. Luckiesh has presented a non-technical account of *Seeing and Human Welfare* in which the relation of good vision to behavior, efficiency and general welfare is discussed (Williams and Wilkins).

Perception.—In the "after-effect of visually observed motion," aroused by the observation of spirals whirling in opposite directions, it has been concluded by L. W. Gates that some kind of eye-muscle response may account for the simultaneously opposed movements of the after-images (*Amer. J. Psych.*, Jan.). Some "new phenomena of apparent visual movement" have been demonstrated by S. W. Fernberger; these phenomena include double sets of figures in which there was movement between the members of the sets rather than between the different figures; the movement experience is thus seen to be due to the relations existing between the stimuli (*ibid.*, April).

Audition.—The action of the auditory nerve during sound stimulation has been shown by Wever and Bray to give rise to changes in electrical potential which will activate a telephone to produce the same sounds as the original stimulus. This phenomenon has been further demonstrated by W. Hughson, S. J. Crowe and H. A. Howe in cases where the auditory receptor organ has been injured. In these cases there was a faintness in the nervous response which seemed to correspond to those excitations which occurred in the injured areas of the receptor (*Acta Oto-Laryng.* No. 1-2). P. M. Zoll has shown that in "the relation of tonal volume, intensity and pitch" that higher pitches tend to be more intense whereas the attribute of volume varied indefinitely (*Amer. J. Psych.*, Jan.).

Somatic Senses.—"Analgesia and anesthesia" are induced by many clinical methods which indicate that the neural loci of pain tracts are distinct from those of touch: A. M. Dogliotti (*Med. Rec.*, Oct.). F. Heiser and W. K. McNair have compared "stimulus-pressure and thermal sensation," finding that the sensation of warmth and heat are reduced by previous stimulations of touch in the same cutaneous regions (*Amer. J. Psych.*, Oct.). The "adaptation of pain to radiant heat," as shown by L. J. Stone and K. M. Dallenbach, indicates that pain is a distinct sense from pressure (*ibid.*, July). Deaf persons are taught to perceive by their sense of touch the vibrations transmitted into instruments from spoken language; L. D. Goodfellow has demonstrated that this vibration sense differs from ordinary tactual sensations and varies in sensitivity on different parts of the body (*J. Acous. Soc. Amer.*, July). There is less "accuracy in the localization of cutaneous pressure" than of pain; in explanation of this M. J. Zigler, E. M. Moore and M. T. Wilson have suggested that there is higher variability in the character of the nerve impulses resulting from stimulation of the pain receptors (*Amer. J. Psych.*, Jan.). In comparing the "influence of visual and auditory patterns on tactual recognition," T. M. Abels has shown that a greater affinity exists between vision and touch due to their similar spatial characteristics (*ibid.*, July).

Chemical Senses.—There are certain substances which give vivid taste sensation to some persons and not taste at all to other persons; such a substance is phenyl-thio-carbamide; the sensitivity to this substance appears to be an inherited factor because whole families are either sensitive or insensitive to it; L. W. Para has found that there are also consistent trends in the taste sensitivity of different racial groups (*J. Hered.*) "Olfactory imagination and olfactory hallucination" occur both in normal and in psychotic persons, according to W. Bromberg and P. Schilder; smell experiences are usually referred to objective sources (more so than taste experiences), and in those cases, as with brain tumor, in which the odor experiences arise from an internal nervous excitation, the tendency for objective reference seems to acquire the persistence of a delusion (*Arch. Neur. & Psychiat.*, Sept.).

PHYSIOLOGY

Brain Studies.—An extensive survey of the recent clinical and experimental observations concerning the *Localization of Functions in the Cerebral Cortex* has been published by the Association for Research in Nervous and Mental Diseases. Clinical studies of tumors and injuries are inclined to indicate a considerable localization of function whereas experimental ablations of cortical tissue (usually in animals) tends to show a generalization or equipotentiality of function (William & Wilkins). "The removal of the post-central convolution of the macacus rheses monkey" resulted in no loss of efficiency in the performance of tests involving delayed reaction: C. J. Warden and others (*J. Comp. Psych.*, Oct.). K. Diven has commented on Dr. Dandy's "radical extirpations of brain tissue in man," and has pointed out that from these results many tumors are found to exist in non-critical regions but which exert an effect through pressure or oedema on neighboring regions (*Amer. J. Psych.*, July). There is a definite "metabolism of mental work," consisting of such biochemical changes as the increase of inorganic phosphorous and a decrease of sugar (H. Goldstein, *Arch. Psych.*, March).

Nerve Impulse. — G. A. Fry has shown that the phenomena of "colour contrast" involves a modulation of the optic nerve current so that effects other than those expected from given light waves may result; for example, yellow color may be induced from white light as well as from blue (*J. Exper. Psych.*, Dec.). Further discoveries of "the innervation of skeletal muscle" (the so-called voluntary muscles) has been summarized by J. C. Hinsey; the influence of the sympathetic nervous system on the skeletal has been noticed in an increasing number of studies (*Physiol. Rev.*, Oct.). Pointing out certain "changing conceptions in physiological psychology," H. R. DeSilva and W. D. Ellis have emphasized the increasing significance assigned to the motor end processes (*J. General Psych.*, July). C. W. Darrow and A. P. Soloman have concluded that the "galvanic skin reflex" exhibits low resistance when a large amount of free bodily energy (or emotional activity) is present, and exhibits high resistance when small energy is expended; therefore the galvanic test is useful in measuring the physiological effects of certain psychotic states (*Arch. Neur. & Psychiat.*, Aug.).

MOTOR PHENOMENA

Conditioned Responses. — C. A. Switzer has carefully studied the "anticipatory and inhibitory characteristics of delayed conditioned reactions," such as those from the galvanic skin response, and has concluded that the subjects who were given an electric shock 16 seconds after the continuous presentation of a light anticipated the shock at a continually earlier moment (*J. Exper. Psych.*, Oct.). An investigation of "the conditioned iridic reflex" by L. C. Steckle and S. Renshaw indicated that the change in size of pupil as established by various indirect stimuli is not as constant or enduring a state as other conditioned responses (*J. General Psych.*, July).

Motor Coordination. — Studying "eye-hand coordination," M. Korins has shown that athletic persons with previous general training are capable of better control of movement in novel situations (*J. Exper. Psch.*, Dec.). "The treatment of the person who stutters'' requires individual diagnosis and treatment because various circumstances, such as emotional shock, conflicting motor habits, etc., arouse the malady: J. M. Dorsey (*Ment. Hyg.*, July). In a study of ''motor automatisms,'' M. Seham and D. V. Boardman have found that many motors tics are common among normal people and hence are not necessarily pathological symptoms (*Arch. Neur. & Psychiat.*, July).

ANIMAL PSCHYOLOGY

Intelligence.—In the field of animal learning B. F. Riess has studied the ''limits of learning ability in the white rat and guinea pig,'' and H. A. Fjeld has made a similar study of the ''rhesus monkey:'' on a comparative scale it was found that the guinea pig received an average score of .5, the rat .9, (kittens 3.6), and the monkey 7.4; both the presence of individual peculiarities in behavior as well as different speeds of general learning were noted (*Genet. Psych. Monog.*, Jan.-June). The variety of ''modes of behavioral adaptation in the chimpanzee'' to multiple-choice problems has been described by R. M. Yerkes; it was noted especially that an adaptive discovering attitude of behavior is often lacking for long periods of time despite much punishment; also, practice in certain problem situations sometimes hampers adaptation to subsequent novel situations (*Comp. Psych. Monog.*).

Animal Behavior.—R. H. Morey has found that ''the swimming speeds of rats'' increased in the presence of loud sounds; this is interpreted as an indication of the effect of dynamogenesis (*J. Comp. Psych.*, June). C. C. Hall has noted that in approaching a food goal ''the rat's speed of locomotion'' increases as it progresses, even during states of satiety (*ibid*).

General Texts.—A book, *Comparative Psychology*, edited by F. A. Moss, has been organized according to psychological topics, such as ''the conditioned reflex,'' etc. (Prentice-Hall). An *Introduction to Comparative Psychology* has been produced by C. J. Warden, T. N. Jenkins, and L. H. Warner. The volume considers all the characteristics of a given division or phyla of animals in one chapter, then proceeds to the next division; this organization of the subject is highly useful in many types of research (Ronald).

AFFECTION

Feelings.—H. Cason has recorded the fact that there is more gross bodily movement in the act of forming associative reactions to affectively toned stimulus words (the Kent-Rosanoff list) than to the indifferent stimuli (*Amer. J. Psych.*, Apr.). H. Cantril has compared the difference between the presentation of emotional ''situation and adrenalin in the induction of emotion'' within individuals; the results obtained showed that individual idiosyncrasy plays the largest role in the resulting expressions aroused (*ibid.*, Oct.).

Emotion.—W. B. Cannon has described the ways in which strong emotions involve the thalamus and also involve the autonomic nervous system which regulates body temperature and the acid, sugar, blood and fat metabolism of the organism (*Scient. Mo.*). E. Duffy has pointed to emotion as an ''example of the need for reorientation in psychology''; she contends that there is no differentiation between the physiological mechanisms underlying emotions, nor any distinction between content; there is only a difference of degree; thus the concept of ''emotion'' should be replaced by a classification of the elemental types of behavior (*Psych. Rev.*, March).

GENETIC

Inheritance.—Much of the heredity and environment problem rests on distinctly biological evidence and upon experimental studies such as that by H. L. Ibsen and L. D. Bushness on ''the effects produced on parents and descendents by the injection of calf lens material directly into the rabbit parent:'' in this case the offspring were normal-eyed (in contrast to the work of recent years in which rabbit lens injected into the mother rabbit produced defective eyes in the offspring) (*Genet.*, July). ''Instinct as an explanatory concept'' has been defended by L. S. King on the grounds that this concept best fits that interval in events between stimuli and the specific responses which ensue (*J. Abn. & Soc. Psych.*, July-Sept.).

Child Study. — F. Goodenough's *Developmental Psychology* combines the essentials of general psychology with the special study of children; the book furnishes those unacquainted with psychology both a text and a discussion of the genetic aspects (Appleton-Century). G. D. Stoddard and B C. Wellman have also written a *Child Psychology* (Macmillan). An observant study of the daily activities of the young is given in J. R. Burke's book, *The Bundle of Life* (Dutton). B. Schiller has indicated that the ability of young children may be distinguished according to three types of performance — verbal, numerical and spatial abilities (*Arch. Psych.*, March). T. R. Garth and E. P. Porter have measured ''the color preferences'' of over 1,000 children and found that up to six years of age the preferences are indefinite; there seems to be an increasing loss of esteem for yellow (*Amer. J. Psych.*, July). E. Kawin has discussed the problems of social and mental adjustment in *Children of the Preschool Age* (Univ. of Chicago Press).

RETENTION

Memory.—J. A. McGeoch and F. McKinney showed that when other mental work was interposed between the memorization of a poem and its recall, a greater amount of forgetting occurred than if a period of rest was interposed; this demonstrates the influence of ''retroactive inhibition'' (*Amer. J. Psych.*, Jan.). In the ''organization of memory in young children'' A. J. Bryan has noted that verbal ability is correlated highly with memory ability, also that memory depends on a general capability as well as on mere retentivity (*Arch. Psych.*, May).

Learning. — In comparing the ''transfer of learning and age of previous associations'' S. H. Britt has shown that with older maze habits there is a considerably greater influence upon the acquisition of similar situations in new mazes than occurs with more recent habits (*Amer. J. Psych.*, Jan.). A. J. Gibson and J. J. Gibson have demonstrated that the interpolation of a task similar to a main task of learning hinders the learning whether the ''interpolated task'' is similar in ''operation'' or in material (*ibid.*, Oct.).

APPLIED

Abnormal.—G. v.N. Dearborn has presented a ''criterion of psychosis'' which he bases on ''intellectual deterioration'' (rather then on emotional symptoms) as the most accessible means of testing the mental condition of the patient (*J. Abn. & So. Psych.*, July-Sept.). F. A. Gibbs and others have concluded that epileptic seizures are not caused by arteriosclerosis (*Arch. Neur. & Psychait.*, Aug.). P. Bailey has outlined the requirements for ''the training of a neurologist,'' and has emphasized the necessity of constant collaboration between the specialists of surgical, medical and neurological practice (*J. Nerv. & Ment. Dis.*, Oct.). J. J. B. Morgan has written a popular psychotherapeutic book on *Keeping a Sound Mind* (Macmillan). Another book of similar trend is one by R. M. Dorcan and G. W. Shaffer called *A Textbook of Normal Psychology* (Williams and Wilkins). A symposium on *The Problem of Mental Disorder*, prepared under the direction of M. Bentley, presents a range of information on all the medical, surgical and sociological aspects of psychoses; there are contributions by 25 specialists (McGraw-Hill).

Industrial and Vocational.—W. H. Wilke has made ''an experimental comparison of the speech, the radio, and the printed page as propaganda drives:'' it was found that radio technique produced the greatest influence toward a negative attitude on the part of the subjects; also, regarding the general shifts of attitude, greater familiarity with a subject produced a more radical attitude (*Arch. Psych.*, June). E. K. Strong has pointed out a distinction between ''aptitudes versus attitudes in vocational guidance;'' factors such as morale, purpose and interest are as important as is the candidate's skill in a given type of work (*J. Appl. Psych.,* Aug.). In a similar vein, A. Lichtenstein has discussed the question, ''can attitudes be taught?'' (*Johns Hopkins Studies in Education*). H. C. Link has designed ''a new method of testing advertising'' which consists of interviews with 14,000 consumers; the manner in which questions are phrased has caused distinct differences in the testimonials procured (*J. Appl. Psych.,* Feb.). *Photoplay Appreciation in American High Schools* has been investigated by W. Lewin who finds that the children see approximately 50 photoplays a year; there is the educational possibility that essays and criticisms can be written about many of these plays; also more attention and interest are given to the motion picture portrayal of school subjects (Appleton-Century).

Personnel and General.—In ''selecting sales personnel'' it is important to determine the presence of an exceptionally alert attitude as indicated by speed and interest in performing tests, according to R. F. Lovett (*Personnel J.,* Feb.). W. O. Pierce has formulated diagnostic tests and suggestions for the *Selection of Colour Workers* (Pitman). M. S. Viteles has summarized the general field of industrial psychology, including many of his own investigations in his book, *The Science of Work* (Norton). R. W. Husband has sought to present *Applied Psychology* in a more scientific manner by making a comprehensive synthesis of the experimental findings regarding social, mental and physiological conditions (Harper).

SOCIAL

Individual Differences.—A survey of the methods and results as well as the all-pervading significance of *Individual Differences* has been described by F. S. Freeman (Holt). Regarding the ''effect of fraternities on scholarship,'' T. M. Carter has found that no distinction exists in the scholastic achievements of fraternity and non-fraternity men (*J. Appl. Psych.,* June). A. Myerson's book on *Social Psychology* has incorporated a lengthy discussion of the characteristics of human physiology which is considered to be the basis of social conduct (Prentice-Hall). In substantiation to the prevalent general findings on ''prison mental tests,'' W. W. Argow has shown that there is very little significance in such tests since many prison inmates give performances above the average (*J. Crim. Law & Criminol.,* March-Apr.). R. Hamlin has found a good degree of ''predictability of institutional adjustment of reformatory inmates,'' both in their criminal inclinations and in their inclinations toward industriousness (*J. Juv. Res.,* July).

Educational. — H. S. Tuttle has combined the facts of two fields of study in his *Social Basis of Education* (Crowell). Another combination, on *Mental Hygiene and Education,* has been presented by M. Sherman (Longmans). H. C. Bagley has discussed *Education and Emergent Man* (Nelson) and J. M. Fletcher has offered a text on *Psychology in Education* (Doubleday, Doran).

SOCIOLOGY

By L. L. Bernard

Professor, Washington University

MEETINGS OF SOCIOLOGICAL SOCIETIES

American Sociological Society. — The 28th annual meeting of the American Sociological Society was held at Philadelphia, Dec. 27-30, 1933. The central theme of discussion was ''Race Adjustment.'' Other papers presenting the results of investigations in biological, rural, educational, and psychiatric sociology, the sociology of religion, community and family study, social psychology, social institutions, human ecology, social statistics, and social work were also presented. The society adopted the new constitution which had been under discussion during the year preceding the meetings, but laid on the table the plans for a change of policy in regard to publications proposed by a committee appointed to study the matter and adopted a compromise proposal to admit a number of sociological journals to the privilege of sharing in membership dues. W. E. Burgess (University of Chicago) was elected president of the Society for 1934, and Henry P. Fairchild (New York University) and Stuart A. Queen (Washington University) were chosen vice presidents. Herbert Blumer (University of Chicago) was reelected Secretary-Treasurer.

The Eastern Sociological Conference met at Harvard University April 21-22, and discussed "Sociology and the National Reconstruction Program." James H. S. Bossard of the University of Pennsylvania was elected president for 1934-1935, and E. E. Muntz of New York University was elected secretary. The 1935 meeting will be held at Columbia University some time in April.

The District of Columbia Sociological Society held its first meeting at Washington, Sept. 27, 1934, with Stuart A. Rice as president and Frederick F. Stephan as secretary.

The Ohio Sociological Society held its ninth annual meeting at Columbus, April 5-6, 1934, and discussed research in the field of social problems. J. E. Hagerty of Ohio State University was elected president and S. W. Newman of Oberlin College was chosen secretary for 1934-1935. The 1935 meeting will be held at Columbus, April 6-7.

The Indiana Association of Economists and Sociologists met April 20-21 at Notre Dame. The discussion centered around the general theme of social and economic recovery. H. B. Wells of Indianapolis and W. C. Cleveland of Indiana University were chosen president and secretary respectively for 1934-1935.

The Iowa Association of Economists and Sociologists held its 1934 meeting at Grinnell College May 4-5, concentrating largely on national recovery problems. H. W. Bohlman of Drake University and L. E. Garwood of Coe College are the president and secretary for 1934-1935.

The Sociological Section of the Missouri Academy of Science held its sessions in connection with the Academy meetings at Columbia, Mo., Dec. 6-8, 1934, under the general chairmanship of L. L. Bernard of Washington University. The program of 12 papers fell under the general heading of current research.

The Sociological Section of the Southwestern Social Science Association met with the general organization at Dallas, Tex., March 30-31, 1934, and presented research papers dealing with the Southwest. William C. Smith of William Jewell College (Missouri) was elected chairman and O. D. Duncan of Oklahoma Agricultural and Mechanical College was chosen secretary. The Southwestern Social Science Association has determined upon a regional social science survey of the Southwest, and the program for 1935, to be held in the Easter holidays in Oklahoma City, will deal chiefly with this theme. L. L. Bernard of Washington University was selected as general director of the sociological division of the survey.

The Pacific Sociological Society held its fifth annual meeting at the University of California (Los Angeles branch) on Jan. 12-13, 1934. The general theme was "Races in California." Constantine Panunzio is the president for 1934-1935.

The Institute of Race Relations was held under the direction of the Committee on Race Relations of the Society of Friends at Swarthmore College, July 1-28, 1934. Five general topics were covered: "Races and Cultures," "World Race Problems," "Cultural and Historical Factors in the American Negro-White Race Problem," "Sociological Factors in the American Race Problem," and "Techniques and Methods." Charles S. Johnson of Fisk University is director of the Institute, which will hold another session in the summer of 1935, and Helen R. Bryan, Philadelphia, is secretary.

SOCIOLOGICAL RESEARCH

Types of Research.—The research interests of sociologists have closely conformed to the major social trends of the year, thus demonstrating the vitality and timeliness of sociological research in the United States in 1934. According to reports on 304 current sociological research projects undertaken by members of the American Sociological Society (*American Journal of Sociology,* Sept., 1934, XL, 221-239), the chief field of research was poverty and dependency, with a total of 33 projects, or approximately 11 per cent of the whole number of projects. The next most active fields of research were Human Ecology, with 31 projects, and the Family, with 30 projects. The study of the Rural Community, which ranked second, with 36 projects in 1933, fell to fourth place, with only 24 projects, in 1934, owing to the fact that Federal funds and rural sociologists have been largely put to work on problems connected with the depression. These problems are administrative as well as research in character. Methods of Investigation, which ranked first, with 40 projects, in 1933, fell to fourth place, with only 24 in 1934. Sociological Theory and History took equal rank, with 24 projects. Crime and Delinquency, and Population and Territorial Groups came next with 22 and 21 projects respectively. Human Nature and Personality was represented by 16 projects; the Sociology of Religion, by 12; Recreation, Celebrations, Festivals, by 11; Collective Behavior, by 8; Conflict and Accommodation of Groups, Educational Sociology, and Health, each by 7; Mental Diseases, by 6; Peoples and Cultural Groups, Social Organization and Social Institutions, and the Newspaper, each by 5; Courts and Legislation, by 3; Social Change and Social Evolution, by 2, and Hygiene, by 1.

Research of Graduate Students.—Thirty-one universities and colleges reported 267 doctoral dissertations in process and 49 institutions reported 292 masters' dissertations in process (*American Journal of Sociology,* July, 1934, XL, 74-103). These research projects are in addition to those recorded above for the members of the American Sociological Society. These projects classify, allowing for overlapping in two or more fields of interest, as follows: analyses of groups, 47 doctoral and 46 masters' dissertations; social control, 37 and 17 respectively; cultural sociology, 33 and 22; social organization, 27 and 10; social attitudes, 26 and 31; crime and delinquency, 23 and 21; sociology of religion, 20 and 10; social institutions, 19 and 13; personality, 19 and 25; industrial and professional relations, 17 and 20; human ecology, 16 and 17; urban sociology, 16 and 7; propaganda and public opinion, 15 and 11; the Negro, 15 and 15; methods of investigation, 13 and 3; children, 12 and 22; the family, 12 and 19; rural sociology, 12 and 12; social theory, 12 and 10; social change, 12 and 12; social adjustment, 12 and 39; social work, 11 and 52; conflict, 11 and 10; history of social theory, 8 and 7; educational sociology, 8 and 16; population, 7 and 7; Indians, 5 and 0; recreation, 5 and 16; leadership, 4 and 3; sociology of art, 4 and 1; migrations, 4 and 0; social planning, 3 and 0; women, 2 and 9; youth movement, 1 and 1; communication, 1 and 1; invention, 1 and 0. There was a gain of 8 doctoral dissertations, or 3 per cent, over the previous year, and a loss of 64, or 18 per cent, in masters' theses listed for the current year.

Certain divergences in subject matter between doctors' and masters' dissertations may also be observed. While the former emphasize group analysis, social control, social organization, and cultural processes very largely, the masters' theses place a major emphasis upon social work, social adjustment, the family, children, recreation, and industrial problems. The candidate for the master's degree usually attacks a practical social problem, while the would-be doctor is more concerned with theory. Both candidates, however, manifest an almost equal interest in crime and delinquency, group behavior, social attitudes, personality, and human ecology.

Total Research for the Year. — Combining the reports of research projects undertaken by members of the American Sociological Society and the figures for doctors' and masters' dissertations recorded above, with reports on 395 additional research projects reported directly to the writer of this account or taken from other sources, a total of 1,258 sociological research projects for the year 1934 is obtained. This does not represent the total sociological research in process, but the total reported through the several channels available. In this total there is practically no duplication.

Centers of Research.—New York State stands first as a center of sociological research, with 225 projects to its credit. Illinois follows closely, with 218 projects. The other states distribute as follows: Missouri, 102; North Carolina, 100; Tennessee, 57; Pennsylvania, 56; Ohio, 49; California, 47; Michigan, 45; Massachusetts, 40; Wisconsin, 39; District of Columbia, 38; Nebraska, 25; Connecticut, Minnesota, Oregon, each 24; Kansas, 22; Iowa, Texas, each 14; Canada, Washington, each 13; North Dakota, 12; Oklahoma, 10; Virginia, 9; Louisiana, 8; Colorado, 7; Arkansas, New Hampshire, each 6; Alabama, South Dakota, each 5; Hawaii, Indiana, Kentucky, Utah, each 4; Montana, New Jersey, Vermont, each 2; and Georgia, Maryland, Mississippi, South Carolina, Wyoming, each 1. As might be expected, the urban centers usually led in research projects, with one notable exception. Chicago came first, with 169 projects; New York City second, with 166 projects; St. Louis third, with 79; Chapel Hill, N. C. fourth, with 75 projects; Madison, Wis. and Washington, D. C., fifth, each with 38; and Nashville, sixth, with 30.

In terms of individual institutions the distribution of sociological research for this year is equally illuminating. The University of Chicago leads with 150 projects under all four of the categories listed above. Columbia University and the University of North Carolina tie for second place with 75 projects each. Washington University (St. Louis) comes next with 58 projects. The other institutions distribute as follows: New York University, 40; University of Wisconsin, 39; Jewish Graduate School of Social Work, 34; University of Southern California, 24; University of Minnesota, 23; Cornell, 22; University of Oregon, 21; Fisk, Kansas, Pittsburgh, and Yale Universities and the United States Government, each 20; the Universities of California and Michigan, 19 each; Michigan State College, 18; Harvard, 17; the Universities of Illinois, Missouri, Ohio, and Pennsylvania, and North Carolina State College, 15 each; Nebraska and Northwestern Universities, 14 each; Iowa and St. Louis Universities and Catholic of America, 13 each; University of Tennessee, 12; McGill, Massachusetts State College, the Universities of North Dakota and Omaha, and Vanderbilt, each 10; Miami (Ohio) University and Oklahoma Agricultural and Mechanical College, 8 each; Texas State College for Women, 7; Arkansas and Clark Universities, Dartmouth, Louisiana State University, Pennsylvania State College, Tennessee Valley Authority, Vassar College and the University of Virginia, 6 each; Bryn Mawr College and Bucknell, Buffalo, Duke, Stanford, and Toledo Universities, 5 each; Cincinnati, Hawaii, and Ohio Wesleyan Universities, 4 each; the Universities of Akron, Kentucky, South Dakota, Syracuse, and Washington, Elmira, McKendree, Oberlin, Smith and Virginia A. and M. Colleges, Tuskegee Institute, and Brookings Institution, 3 each; DePauw, Indiana, Oklahoma, Southern Methodist, Texas, Tulane, Wayne, Western Reserve, and Wichita Universities, and Birmingham-Southern, City College of New York, Connecticut State, Elmhurst, Goucher, Green Mountain Junior, Maryville Teachers, Merrill-Palmer, Park, South Dakota State, and William Jewell Colleges, 2 each. The Universities of British Columbia, Colgate, Colorado, Drew, Howard, Loyola, Rochester, Simmons, Texas Christian, and Wyoming, and Amherst, Ashland, Central Y. M. C. A. (Chicago), Claremont, Clemson, Franklin and Marshall, Hastings, Haverford, Lebanon, Lindenwood, Mississippi State, Mount Saint Scholastica, North Carolina State for Women, Sam Houston, Washington State Colleges, Bradley Polytechnic Institute, Harris, Johnson City (Tenn.), Kalamazoo (Mich), Minot (N. D.), St. Cloud (Minn.), State Teachers Colleges, Crozier, Hartford, Hillsdale, Theological Seminaries, and the Atlanta and New York Schools of Social Work each reported one research project.

Major Research Projects. — The Federal Government has instituted several important sociological research projects in connection with the so-called New Deal policies of the present administration at Washington (*Farm Population and Rural Activities,* VIII, 6-9, Oct. 1, 1934), one of the most important of which is the Research Section of the Federal Emergency Relief Administration, with a staff of 11 rural sociologists and a current program of five major projects of research (*Ibid.*, pp. 7-9). The Tennessee Valley Authority has also carried on several sociological, as well as other, research projects, among which are ''rural migration, housing, social and economic status of the Negro population of the Valley, hospitalization in the Tennessee Valley, the social effects of a small town 'boom' upon a Tennessee mountain population, folk lore and folk ways of the mountain people.'' Other research projects are contemplated by the TVA, and it has also a large program for educating the workers on the development project and for developing leadership in the valley. A great deal of research has also been carried on under CWA auspices in too many fields and localities to be enumerated. At the University of Tennessee, for example, ten such projects have been completed under the direction of Dr. W. E. Cole. At the University of North Carolina the Southern Regional Survey has been in process under the direction of Howard W. Odum. It is planned to publish some 200 or 300 mapographs to illustrate graphically the results of the survey. At St. Louis University, research has concentrated largely on eugenic problems, with particular emphasis upon morons and marriage. Seba Eldridge has completed a major investigation of voters' attitudes and opinions, Professors Queen, of Washington and Williams, of Park College have been engaged in comprehensive ecological surveys after the Chicago model of St. Louis and Kansas City respectively. Prof. F. W. Hoffer is making a somewhat similar survey at Roanoke, Va. Jerome Davis has completed an extensive jail population survey of Connecticut at an expense of $40,000. The results will be published in a government report. Intensive housing surveys have been made in several cities in connection with slum clearance projects. C. J. Bushnell of Toledo University has directed the survey in Toledo. Family adjustment studies have been in process at the University of Chicago and Washington University. J. F. Steiner has completed a survey of public welfare in Washington for the Washington State Planning Commission. At the College of the City of New York, a social research laboratory has been established, and during the current year 240 students have been working on 67 research projects in sociology and government in this laboratory. Walter T. Watson has completed his extensive study of ''Urbanization in Texas.''

EDUCATIONAL ACTIVITIES

Graduate Work for advanced degrees appears to have been concentrated primarily in 31 institutions supervising work for the Ph.D. degree and in 49 institutions directing the research and study of candidates for the master's degree. In this type of work, the University of Chicago led in candidates for the doctorate, reporting 63 cases. Columbia was second, with 49. The other 29 institutions reporting distributed as follows: New York University School of Education, 23; Wisconsin, 17; Harvard, 12; Yale, 9; North Carolina, Ohio, Southern California, and Washington (St. Louis), 7 each; Pennsylvania, 6;

Bryn Mawr, Cornell, University of Michigan, Michigan State, Minnesota, and Pittsburgh, 5 each; Duke and Vanderbilt, 4 each; Catholic of America, Clark, Iowa, and Stanford, 3 each; California and Washington (Seattle), 2 each; and Claremont, Indiana, Kansas, Nebraska, Northwestern, and Virginia, 1 each.

In candidates for the master's degree Chicago also leads, with 45 names. The Jewish Graduate School of Social Work is second, with 34 candidates. The other institutions rank as follows: Washington (St. Louis), 20; New York, 14; Michigan State, 12; Columbia and Pittsburgh, 11 each; Minnesota and Northwestern, 10 each; Kansas, 9; McGill and Southern California, 8 each; Illinois, 7; Clark, Oregon, and Wisconsin, 5 each; Cincinnati, Hawaii, Iowa, Missouri, Utah, Vanderbilt, and Washington (Seattle) 4 each; Nebraska, North Carolina, Ohio Wesleyan, Omaha, Syracuse, and Virginia, 3 each; Bucknell, Cornell, Fisk, Kentucky, Michigan, Oberlin, Stanford, Tennessee, and Tulane, 2 each; and Catholic of America, Colorado, Duke, Indiana, Loyola, Massachusetts State, North Dakota, Smith, Southern Methodist, and Yale, 1 each.

Student Enrollment.—The increase of student interest in sociology recorded during the past two years continues unabated. The increase in enrollment is naturally more marked among undergraduates than among those working for advanced degrees. Miami (Ohio) reports a 40 per cent increase, largely among freshmen. Nebraska has a 35 per cent increase. The University of Rochester breaks the record with a 384 per cent increase. Washington (Seattle), which reported a 30 per cent increase in 1933, now reports a 50 per cent additional increase for 1934. Washington (St. Louis) has an increase of 15 per cent in the lower classes and approximately 200 per cent increase in advanced work, mainly in the applied courses. Drexel Institute, Michigan State, North Dakota, Pennsylvania College for Women, Pittsburgh, and Wisconsin also report substantial increases, mainly in the field of social work.

Expansion of Social Work Courses.—This year has witnessed a record expansion of social work courses due to the greatly increased demand for trained social workers. The Universities of Akron, North Dakota, South Dakota, and Wyoming and Washington State College have introduced social work instruction in the department of sociology for the first time. Kentucky, Michigan State, Pittsburgh, Washington (Seattle), Washington (St. Louis), Wisconsin, and several other institutions, have materially increased their work in this direction. South Carolina has established a school of social work, and at St. Louis University the department title has been changed to The St. Louis University School of Social Service, including both sociology and social work.

Staff Additions. — The period of staff decline appears to be definitely at an end and an upward trend in appointments is noticeable, especially in the applied aspects of sociology. Additions to faculty are reported from Akron, Buffalo, California, Harvard, Minnesota, North Dakota, Rochester, South Dakota, Tennessee, Vassar, and Wisconsin. At the University of California (Los Angeles) Professor Panunzio now gives all of his time to sociology, which marks a change in the traditional policy of this institution.

PUBLIC SERVICES

The trend toward public service contacts on the part of sociologists noted last year has multiplied several fold this year. Perhaps a majority of the outstanding rural sociologists of the country are now connected with the Department of Agriculture at Washington. The *American Journal of Sociology* listed in a single issue 41 sociologists in governmental investigational work (XXXIX, 850-852, May, 1934). Membership or chairmanships of major governmental commissions were reported from Buffalo (Cantor, on Commercial Crime Commisison of New York), Connecticut State (Rapport, State Milk Control Board), Denver (Cherrington, State Relief Committee), Indiana (White, State Committee on Governmental Economy), Iowa (Hart, on State Planning Board), Kansas (Clark, on State Planning Board), Michigan (Carr, Director, Michigan Juvenile Delinquency Information Service), Minnesota (Murchie and Vaile, State Relief Administration; Murchie, State Director of Rural Rehabilitation), Nebraska (Reinhardt, Chairman, Committee on Juvenile Court Laws of Nebraska), North Dakota (Perlman, United States Bureau Labor Statistics), North Carolina (Woofter, state supervisor of rural research), Oregon (Parsons, Jameson, Cressman, State Planning Council), Oklahoma A. and M. (Duncan, State Supervisor of Rural Research), Pennsylvania (Bossard and Sellin, State Probation Commission; Shalloo, Commission on Special Policing in Industry), Toledo (Bushnell, Metropolitan Housing Authority), University of Washington (Steiner, State Planning Council), Wisconsin (Kirkpatrick, State Supervisor of Rural Research).

Practically every sociologist of experience, and especially those of the universities and colleges located in large towns and cities, are members of one or more committees or commissions, public or private, organized for purposes of investigation or for the promotion of public welfare, and some sociologists are members of a score or more such committees.

PUBLICATIONS

Social Problems.—The practical aspects of sociology again predominate over the theoretical in the field of publication. The leading works on social problems were: W. G. Beach and E. E. Walker, *American Social Problems;* Harry Best, *Blindness and the Blind in the United States;* J. H. S. Bossard, *Social Change and Social Problems;* Mabel A. Elliott and F. E. Merrill, *Social Disorganization;* G. B. Mangold, *Organization for Social Welfare;* Edgar Sydenstricker, *Health and Environment.* The problems of social control and especially of delinquency were represented by Belle Boone Beard, *Juvenile Probation;* E. S. Bogardus, *Leaders and Leadership;* Sheldon Glueck *et al., Survey of Crime in Boston;* H. W. Green, *Slums;* G. A. Lundberg *et al., Leisure, a Suburban Study;* Minehan, *Boy and Girl Tramps of America;* J. E. Nordskog, *Social Democracy and Nationalism in Norway;* Maurice Parmalee, *Bolshevism, Fascism, and the Liberal Democratic State;* and D. O. Wagner, *Social Reformers.*

The Family and Children also came in for a large share of attention, as is indicated by the following titles: S. P. Breckinridge, *Women in the Twentieth Century;* R. L. Dickinson and Lura Beam, *The Single Woman;* J. K. Folsom, *The Family;* K. Glover and E. Dewey, *Children of the New Day;* W. Goodsell, *A History of Marriage and the Family;* E. R. Groves, *The American Family;* E. R. and G. H. Groves, *Sex in Childhood;* E. R. Groves and L. M. Brooks, *Readings in the Family;* L. C. Marshall and G. May, *The Divorce Court;* M. F. Nimkoff, *The Child,* and *The Family;* and Elsie M. Smithies, *Case Studies of Normal Adolescent Girls.*

Race, Immigration, and Population Problems were treated somewhat more scantily, *e.g.;* Paul E. Baker, *Negro-White Adjustment;* E. S. Bogardus, *The Mexican Immigrant in the United States;* C. S. Johnson, *Shadow of the Plantation;* E. B. Reuter (ed.),*Race and Culture Contacts;* E. K. Strong, *Japanese in California,* and *The Second-Generation Japanese Problems;* W. D. Weatherford and C. S. Johnson, *Race Relations.* Population problems were represented by C. J. Galpin and T. B. Manny, *Inter-state Migrations;* Frank Lorimer and Frederick Osborn, *Dynamics of Population;* and E. F. Penrose, *Population Theories and their Application to Japan.*

Sociological Theory and Methods had a generous list of titles to their credit. In the general field of methodology were: L. L. Bernard (ed.), *The Fields and Methods of Sociology;* J. C. Cobb, *The Applications of Scientific Methods to Sociology;* G. R. Davies and W. F. Crowder, *Methods of Statistical Analysis;* C. Luther Fry, *The Technique of Social Investigation;* and J. J. Hader and E. C.

Lindeman, *Dynamic Social Research.* In social theory: E. S. Bogardus (ed.), *Social Progress and Social Processes* and B. J. Stern, *Lewis Henry Morgan.* In the field of general sociology were: E. S. Bogardus, *Sociology;* H. P. Fairchild, *General Sociology,* and *Survey of Contemporary Sociology;* E. R. Groves, *Introduction to Sociology* (revision); E. J. Ross, *Rudiments of Sociology;* and Kimball Young, *An Introductory Sociology.*

The Special Sociologies were well represented. Educational sociology had to its credit R. L. Finney and L. D. Zeleny, *An Introduction to Educational Sociology;* Roy J. Honeywell, *The Educational Work of Thomas Jefferson;* R. C. McCarthy, *Training the Adolescent;* E. George Payne, *Readings in Educational Sociology* (Vol. II). Cultural Sociology included Ruth Benedict, *Patterns of Culture;* Sherwood Eddy, *Russia Today;* Grant Foreman, *The Five Civilized Tribes,* and G. P. Murdock, *Our Primitive Contemporaries.* Social Psychology had to its credit, J. H. Breasted, *The Dawn of Conscience;* L. G. Brown, *Social Psychology;* Felix M. Keesing, *Modern Samoa;* Hugh Hartshorne, *Character in Human Relations;* Gladys C. Schwesinger, *Heredity and Environment;* and Dorothy Thomas *et al.*, *Social Behavior Patterns.* The sociology of religion included E. G. Chaffee, *The Protestant Churches and the Industrial Crisis* and Joseph Husselein, *The Christian Social Manifesto.* Urban sociology was represented by N. P. Gist and L. A. Halbert, *Urban Society* and T. E. Sullenger, *Studies in Urban Sociology.*

ANTHROPOLOGY AND ETHNOLOGY

By Charlotte D. Gower

Assistant Professor, University of Wisconsin

INTERNATIONAL CONGRESS

The First International Congress of the Anthropological and Ethnological Sciences was held in London in the latter part of July and early August. More than 1000 scientists were in attendance, representing 42 different countries. Special subjects of interest were treated by the eleven sections into which the Congress was divided. The members of the Congress passed a resolution recommending to the British Government and to all other governments engaged in the administration of native peoples that in each territory there should be one or more trained government anthropologists appointed as special officers to aid in the solution of problems arising from the contact of the natives with European civilization. It was also recommended that missionaries and government officers in such regions be given anthropological training. A permanent committee was established for the purpose of furthering the collection of scientific film documentation on anthropological subjects.

HUMAN ORIGINS

Tertiary Man. — On the basis of type and patination, Reid Moir has distinguished four distinct series of implements in the material which he has collected from the sub-crag beds in East Anglia. The oldest of these differs as much from the latest as does Early Chellean from the developed Acheulian. This corroborates the opinion of Prof. Ray Lankester that these beds are derived from older formations, and leads Mr. Moir to conclude that human beings were making tools in England even earlier than Pliocene times.

Paleolithic Art.—Female figurines of the Aurignacian type have been discovered in Scotland and Siberia. The one from Scotland was found together with bones of the woolly rhinoceros and tools of paleolithic type. The Siberian figurine, found by Dr. Alfred Salmony near Lake Baikal, showed the steatopygous condition characteristic of the Aurignacian Venuses of France and Germany. With it were figures of birds, serpentine designs, a plaque decorated with spirals, and Aurignacian implements. In Aurignacian deposits in Czechoslovakia Dr. Karel Absolon of Brno University found, together with carvings in stone and bone, a musical pipe made from the tooth of a lion.

China.—A pocket of grey sediments known as the Upper Cave at Chou Kou Tien proved to contain the bones of human beings of modern type. With them were stone implements, perforated fox teeth, and a decorative cylinder of bird bone. The artefacts are apparently more recent than the industries of the Ordos Valley, but resemble those of the Yenesei Valley in Siberia. The paleontological evidence points to a Late Pleistocene date for this material.

Java. — Implements have been found in the stratum which yielded the remains of Solo man, a variant of the Neandertal type who inhabited Java in the Middle Pleistocene. The industry includes scrapers and rostroid types of chalcedony, and bone implements of advanced type. Spines from the tail of the ray indicate trade with the sea coast, and may have been used for weapons.

THE NEAR EAST

Syria.—The French Archeological Expedition to Ras Shamra, under the direction of Prof. C. F. A. Schaeffer, unearthed a pre-Phoenician settlement under the ruins of a city dating to the fourteenth century before Christ. In the older town, the pottery is of a polychrome type reminiscent of the pottery of Susa. In the ruins of the later town were found tombs with corbelled vaults approached by corridors and steps. A series of new tablets, including a treatise on the diseases of the horse, was discovered. The richest find was a large golden bowl and plate, ornamented with a spirited hunting scene. It was of local manufacture, but showed influence from Assyria, Egypt, Mycenae, and Cyprus. Ras Shamra was an important trading center dealing in copper from Cyprus. Its inhabitants made use of an alphabetic cuneiform script.

Palestine.—Continuing his excavations at Gaza, Sir Flinders Petrie has found, in the form of Caucasian daggers and toggle-pins, evidence which indicates that Egypt was invaded by peoples from the Caspian region. This had already been suggested on the basis of linguistic evidence and Egyptian traditions. One of these invasions was that of the Hyksos, or Shepherd Kings. It is in the city built by them at Gaza that the Caucasian types have been found. With them were articles of Irish gold, weights indicating the use of the Persian standards, Egyptian scarabs, and cylinder seals of hematite.

At Tell Duweir, the site of the ancient city of Lachish, J. L. Starkey found evidences of a large settlement at that place during the Copper Age. Natural caverns had been enlarged and used as dwellings. They contain beads of Egyptian proto-Dynastic type. At a later date these same caves were used for burials by a people who were in contact with Egypt during the period of the Old Kingdom. In more recent times, Lachish was the site of a temple of an Egyptian cult. This sanctuary was destroyed in 1262 B. C.

Mesopotamia. — The joint expedition of the British Museum and the Pennsylvania University Museum completed the excavations at Ur. During the last season they investigated 200 graves of the Jemdet Nasr period, which lie at a depth of 54 feet, with the lowest ones sunk in the ''Flood'' deposits. The bodies were buried under inverted bowls, with many stone vases surrounding them. With the burials were found many beads of lapis, crystal, carnelian, chalcedony, shell, and one of gold. Some vessels were made of hammered copper. In the Royal cemetery at a higher level a female statuette of albaster was found in the grave of a soldier. It dates from about 3200 B. C.

Other Sumerian statues were found at Tell Asmar by Seton Lloyd, directing an expedition of the Oriental Institute of the University of Chicago. They represent the Mother

Goddess and the Lord of Life. The statues had been buried under the floor of a shrine which seems to date from 3000 B. C., and with them were other votive offerings, including "violin" goddesses of Cycladic type.

Still other Sumerian figurines were found by the Oriental Institute expedition at Khafaje, in a temple which was in use during the first three centuries of the third millenium. With them were evidences of contact with proto-Dynastic Egypt, and with Mohenjo-Daro. The statuettes had been made in parts, which were then fastened together with pins and bitumen. In the temple there were also zoomorphic amulets, a copper libation ewer, and clay incense burners which moved on wheels.

The site of Mari, excavated by an expedition from the Louvre under André Parrott, also revealed a statuette of the Mother Goddess, dressed in a Sumerian *kaunakes*, with eyes of inlaid lapis and shell. Here there were also portrait statues of the king and certain officials among the votive offerings in the sanctuary, which contained an altar, a well, and a drain. The objects were all broken, probably by invading conquerors under Sargon of Agade. In the temple court was a mosaic similar to the Royal Standard at Ur. It represents a war scene and shows four unmistakable horses hitched to a chariot. The culture of the people was Sumerian, but their inscriptions are in Semitic.

At Kohrsabad, Dr. Henry Frankfort, Director of an expedition for the Oriental Institute, made further discoveries concerning the new capital built by Sargon (721-705 B.C.). The entrance to the palace was guarded by great panels carved with winged bulls. Within a temple certain sculptures of winged sphinxes show the influence of Egypt, probably by way of Phoenicia. The temple was dedicated to Nabau, god of scribes and historians.

The same expedition has further investigated the aqueduct of Gerwan, built by Sennacherib to bring water to Nineveh. The rock for this great work was quarried near the head of the canal. Here also there were monuments and inscriptions telling of the king's achievements.

Egypt.—The excavations of the Egypt Exploration Society under the direction of J. D. S. Pendlebury have provided more information concerning the building of the city at Tell el Amarna. It was hastily done, and much jerrybuilding appears. At one side were the barracks for mounted military police. More letters have been found in the Record Office, and a fragment of an Akkadian-Sumerian dictionary was taken from the site of the University.

Persia.—At Shah-tepe, Dr. Ture Arne, a Swedish archeologist, found the remains of a town 5000 years old. In its ruins are to be found many objects of copper, including statuettes, daggers, and lamps. The pottery was well-made and painted in bright colors. In 40 skeletons which were found, Dr. Arne sees early representatives of the Indo-Europeans. There is some evidence that the people practiced human sacrifice. The town was abandoned about 2000 B.C., through some catastrophe or because of a climate change.

Sir Aurel Stein reports that on his extensive expedition to Baluchistan, Makran, and Fars (1927-1934), he found many sites dating to chalcolithic times and later, which afford many abundant evidence of connections between the civilization of the Indus valley and those of Elam and Mesopotamia.

AMERICA

Minnesota.—Dr. A. E. Jencks reports the find of a human skeleton, presumably a burial, associated with points of the Folsom type. The bones lay at a depth of seven feet in glacial gravels, and the condition of the overlying soil leads Dr. Jencks to the conclusion that the burial was made during the Ice Age.

Nebraska.—A University of Nebraska archeological expedition under the direction of Dr. Earl Bell found the frontal portion of a skull with distinctly neandertaloid characteristics in the upper level of a burial mound. It was associated with other skulls of more modern appearance, and with a culture which gives no evidence of any considerable antiquity.

CWA Projects.—Under the direction of the Smithsonian Institution, archeological expeditions organized under the CWA conducted excavations in California, North Carolina, Florida, Georgia, and Tennessee. In North Carolina and Florida traces were found of De Soto's visits in search of gold. Pottery fragments at Macon, G., give evidence that the Indians of that region had contacts with tribes further to the north. In California, a series of grave posts was found which may permit the dating of the cemetery by the tree-ring method.

Mound-builders. — Excavations near Marksville, La., and in Eastern Oklahoma produced evidences of a southern extension of the Hopewell culture. Dr. Forrest Clements of the University of Oklahoma reports the discovery of well-made cloth, copper blades, and stone ear-plugs in a mound-builder site. The mound-builder dwellings in Louisiana were semi-subterranean structures of rectangular form, a type widely diffused throughout the United States and similar to that of the Basket Maker Indians of the Southwest.

Southwest.—The Van Bergen-Los Angeles Museum expedition found in burials in the Casa Grande and Gila River ruins evidence that the ancient inhabitants of these sites practiced funeral customs similar to those of the modern Yuma and Mohave of the Colorado basin.

Maya.—Recent discoveries in the Maya region may necessitate some revision of former ideas in connection with Maya history. Mexican government archeologists, engaged in restoration work at Ancancéh, near Merida, Yucatan, discovered a small pyramid very similar to one at Uaxactun, Guatemala. This would seem to indicate that the Maya reached Yucatan earlier than has been thought. At the same time, a joint expedition sent out by the Field Museum and Carnegie Institution, under the direction of Dr. Eric Thompson, has found that the Old Empire cities of British Honduras were not abandoned in a general migration to Yucatan but were occupied from about the beginning of the Christian era until the fifteenth century. There were five periods discernible, with copper coming into use in the last phase, which preceded but little the discovery of America.

Zapotec.—The ball court at Monte Alban, with one central altar and sloping side walls, indicates, in the opinion of Dr. Alfonso Caso, director of the Mexican excavation at Monte Alban, that this city was contemporary with the Maya cities of Chiapas and inspired by them. Other evidences of Maya influence are teeth inset with iron pyrites or ''fool's gold''. Hitherto this custom has been limited to the Maya area. Occasionally individuals are found with their incisors filed to form a figure T, the distinguishing mark of the Maya sungod. Maya head-flattening is also found in Monte Alban skulls.

At Mitla Mexican archeologists have excavated the royal Zapotec graveyard. One tomb, which had been sacked, contained 13 copper bells, a broken vessel of painted pottery, and bones which had originally been arranged in piles around the walls of the chamber, with the skulls on top. A second tomb lay under a mound and contained Zapotec pottery, bones, bits of turquoise and jade, and two large gold beads. Caves under the city had also been used for burials.

Inca.—The Pizarro Quatercentenary Excavations under the direction of Luis E. Valcarcel investigated the citadel of Sajsawaman and the fortress Ollantaytambo. In the former were found megalithic bastions, aqueducts, drains, and curious sound-channels for transmitting orders from one part of the building to another. The labyrinth at Sajsawaman proved to be a sanctuary where nobles had been buried in natural caverns enlarged and adapted for the purpose. Connected with the sepulchres was an amphitheatre with a statue of the puma-god at its center. The mausoleum of the nobility of Allantaytambo was located in the upper part of the fortress, and contained wooden vases with incised geometrical decoration, silver vases, bricks, polished stone tiles, and hangings.

At Ayacucho, Manuel Bedicto Flores discovered subterranean ovens where the Incas produced osseous turquoise from human bones. The turquoise was used for making memorial images. At the same site appeared hieroglyphics which seem to be much older than the Inca civilization.

MENTAL TESTS

BY MARTIN L. REYMERT

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NEW TESTS

The past year has offered relatively few new tests, the attention of workers in the field evidently having been centered more on re-evaluation of methods and technique already existent. Sullivan offers a scale for measurement of developmental age in girls, based on the study of changing interests of 1,436 girls of ages 7 to 18 in 14 cities, giving a wide range in cultural and social levels. Noll describes a test of 134 items to test the following six habits of thinking: accuracy, suspended judgment, openmindedness, intellectual honesty, criticalness, and the habits of looking for true cause-and-effect relationships. Kellogg and Morton offer a revision of the Army Beta examination. Kent has revised the Kent-Shakow battery of 7 written tests for clinical use. The new edition of the Kuhlmann-Anderson tests is a refinement of the previous edition, with the most important change being in the age norms. Remmers, in cooperation with several members of his department at Purdue University, has published several new attitude scales for special purposes, all using the generalized attitude scaling technique. R. B. Cattell gives the norms for the Cattell Intelligence test, (Scale III, Form A) from the scores of groups of children aged 8 to 15 and extrapolated for higher mental ages; the average and interquartile ranges of IQ were calculated for each of 178 occupations from unskilled to professional. Van Wagenen has created new Unit Scales of Aptitude, accompanied by individual profile charts, to measure specific functions. Goodenough describes an age scale of mental development from birth to three years of age which was published in 1887 by Dr. S. E. Chaille.

NATURE OF INTELLIGENCE

Perhaps the most important work within the field of mental testing is the endeavor to find what actually constitutes general intelligence or general mental ability. The work of the Committee on Unitary Traits in Intelligence, headed by E. L. Thorndike, has been continued by K. J. Holzinger of the Subcommittee. Through certain preliminary samplings of the huge material mentioned last year, the independence of the following probable unitary traits in intelligence has not yet been established, but their unitary nature has been verified: e.g., verbal ability, immediate memory, mental speed, dynamic speed, attention, mathematical ability, mechanical ability, free imagination, aesthetic ability (music and art), perseveration, oscillation. It is quite possible that several of these traits may show some correlation, but the analysis has not yet reached the point to verify this. When a number of such unitary traits have been established, the Committee hopes to build up a test combination which will show the contribution of such factors to certain criteria including vocational success, academic success, ratings, etc. Two planographed pamphlets have been published as "Preliminary Reports." Thurstone, in his Presidential address to the American Psychological Association, describes his multiple factor theory for classifying personality traits and mental abilities, attempting to determine the smallest number of group factors that must be postulated to account for the differentiable human traits.

DIFFERENTIAL TECHNICAL AND THEORETICAL ASPECTS

Thorndike discusses the procedures and precautions desirable in the selection or construction of tests such that whatever is measured by the tests is homogeneous, and discusses the unity and purity in traits and tests. In several articles, Tryon continues his criticism of the Spearman factor theory. Spearman answers Tryon's criticisms and answers and discusses all other objections to his factor theory that have appeared in the literature. Jorgenson has given an analysis of some psychological tests by the Spearman factor method, through a variety of tests given to freshmen and sophomores at the College of the City of New York, and finds that because of different results with different groups for the same tests, the Spearman method must be used with care. E. B. Wilson discusses the Spearman ''overlapping of abilities,'' showing that any specific test may have either accidental or intentional overlap. Turney defines validity of a test as ''that property of a test by virtue of which it measures what it purports to measure;'' he recommends Spearman's tetrad equation as a method for evaluating items. Brown, Bartelme, and Cox enumerate uses and advantages of the Thurstone absolute scaling technique on scores from the Gesell Developmental Schedule and the California First Year Mental Scale. Horst gives descriptions of some statistical time-saving technique used for securing data for test validation. Anastasi has given a critical discussion on the influence of practice on test reliability. M. Smith has given a thorough discussion of the relationship between the item validation and test validity. Zubin discusses the method of internal consistency for selecting test items and the assumptions and intercorrelations of the three methods: the critical ratio, bi-serial, and association methods. Votaw presents a graphical method of determining the probable error of test items in the validation of tests, giving appropriate formulae and graphs. Segel describes a method for graphically recording test results from which, by inspection, a rough determination of differential success prediction may be made. Tinker discusses the factor of speed in intelligence. Courtis stresses the necessity for the future of giving more attention to determining the individual pattern of growth and to interpreting scores in terms of that pattern; it should be necessary to have data at hand for studying the individual growth curves. Bell, in discussing the use of tests for guidance purposes, stresses the need for knowledge of specific social situations and their implications. Alexander offers a hierarchic theory for research in guidance in which he consolidates the special view of Spearman, Thorndike, Hull, Kelley, and Thurstone.

CONSTANCY OF INTELLIGENCE SCORES

Attention continues to be given to the problem of the constancy of the intelligence quotient (IQ) as well as to the constancy of intelligence scores from group intelligence tests. Line and Kaplan find that in 54 preschool children, having been given the Stanford-Binet test five consecutive times with six months intervals from three years of age, the children of lesser intelligence increase their IQ with age more than the brighter children of their group. Traxler has examined the reliability, constancy, and validity of the Otis IQ and finds this IQ, in general, to be as dependable as the Binet IQ. Thompson has reported on intelligence tests on entering students in 193 American colleges and universities in 1930-1935, 58% reporting a gain in average test score, 1% a loss, 15% no change, and 26% non-usable findings. McConnell, using the psychological examination of the American Council on Education on 70 college students, found a significant gain from freshman to senior year of 40.42. Masters and Upshall, using Thorndike's Intelligence Examination for High School Graduates on college students, find gains in the individual intelligence scores with time. McAlpin has measured changes in the intelligence quotients of negro children in the 3A and 5A grades of the colored schools of the District of Columbia by the Kuhlmann-Anderson test. Seagoe makes a comparison of intelligence quotients on several group tests given at two-year intervals in grades 1B, 3B, 5B, and 7B, and offers an evaluation of several now existing tests. Mowrer, in retesting 95 preschool children after twelve months with both the Binet-Simon and the Minnesota Preschool Scales, finds great variations in IQ and concludes that no rigid classification of the intelligence of the very young child appears to be justified from either of these scales.

SOME CONTRIBUTIONS TO EVALUATIONS OF TESTS

Miles gave the Otis S-A Higher Examination, Form A, as a 15-minute speed test to about 2,000 adults, of whom more than 250 were 70 years of age and older, and furnishes means for rating older and younger persons on a single scale of comparison in terms of percentile rank or standard score within each decade. Tinker gave forms of the Army Alpha test to two groups of subjects in order to find out the influence of speed attitude on test performance. The results show that it makes relatively little difference whether a subject works with speed attitude or leisure attitude. Snee analyzes the Witmer clinical standards through the testing of 400 fourth-grade children and a group of 9-year-old children and finds that the Witmer grade norms can hardly be translated into age norms. Bachelard has experimented with the Crichton test for the more intelligent adolescents and adults on 47 students at Melbourne, and finds that the test "seems weighted in favor of science students." Wrightstone finds an agreement of 91.3% between independent description of the emotional status of pupils as judged by the school staff and responses on the Woodworth-Mathews Personal Data Sheet. Sims has found that a rearrangement test, when scored by the method which expresses scores in terms of numbers of items, compares favorably with other types of objective tests. Lyon and Ford, in general, back up the results of Reymert and Hartman of last year regarding the unreliability of the much used Knox Cube Test. Moore and Trafton have given results from comparisons of four intelligence tests, Terman (Form A), Otis S-A (Form A), Army Alpha (Form 8), and Miller (Form A), as applied to 235 college freshmen. Lorge, retesting a group of boys after ten years with several vocational guidance tests, arrives at the general conclusion that future tests for guidance must consider the retest reliability over periods of time, a procedure which is not now generally used. Merry and Merry have determined that the Miles high-relief multiple-T finger maze test correlates very highly with the general intelligence of blind children. Wallin has offered further data on the Stanford-Binet VIII- and IX-year tests and concludes that these two years of the Stanford-Binet scale are in need of complete revision. Rappaport by the empirical method found that it is most satisfactory to use age 15 as the divisor when calculating Binet IQ's above 15 years of age. Sproule tried out the suggestion effects of the true-false test. Fenton and Wallace have summarized the returns from a questionnaire sent to 28 child guidance clinics in the United States and found the most frequently used test to be the Stanford-Binet. Knight compares the performance of feeble-minded and juvenile delinquents on the Arthur performance scale and the Stanford-Binet and finds that performance on one of these tests will not accurately predict performance on the other, so that both measures should be used. Senour, in testing 453 students in Grade 4B in East Chicago, largely from foreign families, found it necessary to use a non-language test in connection with a verbal intelligence test, for correct results. Cuff used the Thurstone Psychological Examination and the Sims Socio-Economic Score Card to test and rate 758 college freshmen and found that the socio-economic scoring card predicted intelligence scores of only .03 better than mere guess, and scholarship .005 better. Strong discusses vocational interest tests and finds that although the vocational choices may change greatly from 15 to 30 years of age, the interest pattern seems to remain surprisingly stable.

USE OF TESTS FOR STUDYING SPECIAL GROUPS OR PROBLEMS

Garth and Johnson measured the intelligence and achievement of 683 Mexican children in the United States with the Otis Classification test, with several results, among them that the Mexican child is more like the American white child in the early ages but less like him as he grows older, in both school achievement and intelligence, with the mental and educational ages for a grade below the American white norms. Hildreth classified 600 public school children and a similar number of private school children according to the occupation of the head of the family, having Stanford-Binet IQ's available for all children. She found the median IQ's in the following occupations to be: professional 113, executive and business 107.5, skilled labor and clerical 97.5, semi-skilled labor 84, and unskilled labor 75.7, with wide overlapping of the various occupational levels. A. Rosanoff, Handy, I. Rosanoff, and Inman-Kane have discussed the sex factors in intelligence and find that there is a higher incidence of both relative and absolute mental deficiency in the male than in the female sex. Sorenson selected 641 students from a group of 5,500 attending the general extension course at the University of Minnesota and measured their mental ability, over the ages 16 to 70, with the conclusion: "Most experiments show a decline of abilities with age because the persons studied were out of practice, so to speak, with the intelligence test content." Maller has presented intelligence test results from 100,098 pupils in New York City and compared them with physical health and social-economic status. Mental ability was found to correlate negatively with death rate. Intelligence, health, character, and economic status, when inter-correlated, seem to possess a common factor which might be regarded as the developmental status of the group or neighborhood. Street used the Gestalt Completion Test on 263 children and adult patients in the Psychiatric Institute and Hospital, New York City, and found, in general, definite inferiority of functional mental cases and marked inferiority of organic mental cases in capacity to succeed on this test. Steinbach, in using the Stanford-Binet on juvenile delinquents, stresses the disproportionate importance frequently given to the intelligence in relation to juvenile delinquency. Levy and Beck offer results from the use of the Rorschach test on 15 cases of manic-depressive psychosis. Richey has investigated the effects of presence or removal of diseased tonsils and adenoids on intelligence quotients of 204 children and found no noticeable effect upon the IQ. Douglas writes about the effects of state and national testing of the secondary schools and finds that leaders are somewhat skeptical about educational value of present state-wide testing methods. Thurstone has published quartiles for the various universities and colleges, submitting test records on the tenth edition of the American Council on Education Psychological Examination, and Segel and Gerberich investigated differential college achievement predicted by the same test.

NEW BOOKS AND GENERAL REVIEWS

Klineberg gives the history and development of tests in the new Encyclopedia of the Social Sciences, stressing the danger of purely quantitative approach and interpretation. Pintner has given in *Psychological Bulletin* his annual bibliographical summary of intelligence tests, covering 175 titles for 1933. Thorndike, Bregman, Lorge, Metcalf, Robinson, and Woodyard have published in book form (Commonwealth Fund) the results of a ten-year study of more than 2,000 children, who were 14 years of age in 1922, in regard to such items as general intelligence, clerical capacity, mechanical adroitness, and educational history, in order to find possible predictions for vocational success. The correlations between the items available in 1922 and educational and vocational history of these children since that time were rather low. The American Council on Education has published its first report of the Committee on Personal Methods in regard to measurements and guidance of college students. Kintner discusses all available measurements of artistic ability in a monograph published by the Psychological Corporation. Conrad has published a monograph (Clark Univ. Press) on a statistical study of ratings on the California behavior inventory for nursery school children. Reusser has published a lithoprinted workbook in tests and measurements (Edwards, Ann Arbor) which introduces teachers to the field of testing. A book by F. S. Freeman (Holt) deals with individual differences, the nature and causes of variations in intelligence and special abilities. Paterson and Andrew have published the measured characteristics of clerical workers (Univ. of Minn. Press).

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

American Anthropological Society, Inc., 11 East 45th Street, New York City.

American Genetic Assn., 306 Victor Bldg., Washington, D. C.

American Philosophical Society, 104 S. 5th Street, Philadelphia, Pa.

American Psychiatric Assn., 450 Seventh Ave., New York City.

American Psychological Assn., Univ. of Minnesota, Minneapolis, Minn.

American Psychopathological Assn., 520 Commonwealth Ave., Boston, Mass.

American Society for Psychical Research, 15 Lexington Ave., New York City.

American Sociological Society, 1126 E. 59th St., Chicago, Ill.

Encyclopedia of the Social Sciences, 100 Morningside Drive, New York City.

National Committee for Mental Hygiene, 450 Seventh Ave., New York City.

National Institute of Social Sciences, 271 Madison Ave., New York City.

Psychological Corporation, 522 Fifth Ave., New York City.

PART SEVEN
THE HUMANITIES

DIVISION XXV
LITERATURE AND LANGUAGE

FICTION

BY J. DONALD ADAMS

EDITOR, *Book Review; The New York Times*

TENDENCIES

There have been recent years more notable than 1934, in the history of the American novel in the sense that they saw the publication of a larger number of books likely to live beyond their immediate time. Yet 1934, as one surveys it in retrospect, was a year of more than usual interest. If comparatively few writers of established reputation produced books which added to their stature, the number of promising new talents which the year revealed was above the average. It was, furthermore, marked by certain clearly defined tendencies which, though they had been discernible earlier, gathered very perceptibly in strength during 1934.

One of these, interesting though it is, requires no more than passing mention, and that is the lengthening of the novel. During the 1920s American fiction seemed tending toward a shorter form and to be restricting itself in scope. Few novelists attempted to handle large groups of characters or to cover long periods of time. Now there is apparent a trend toward the fuller-bodied story, an interest in the "chronicle" type of novel, and an approach toward that prodigality of characterization which was typical of the great Victorians. Probably this has been the result simply of the reaching out after more ambitious themes.

Two other tendencies are no less obvious. Though they appear at first thought sharply separate, both really stem from a common source, and that is an acute awareness of the disordered world in which we live. It has moved some novelists to the nostalgic recording of a past period and aroused in them a sense of lost or discarded values; others have returned to the past but have carried their stories on down into the present in an effort to show how we have become what we are. And finally, there is the growing school of consciously "proletarian" writers who either see life in terms of class struggle and interpret it accordingly, or else are bent on a more objective presentation of working-class life and of the conflict between industry and labor.

THE AMERICAN PAST

The most popular novel of the year, and one of the best, Stark Young's *So Red the Rose* (Scribner) was definitely the product of a nostalgic attitude. A very beautiful recapturing of the aristocratic order in the old South, it illuminated, without the false glow of sentimentality, the values by which that civilization lived. Distinguished in its prose and vital in its characterization, this was a novel so evidently derived out of profound feeling and personal identification with its material that it seems assured of a more than transitory interest.

Another distinguished novel of the American past was Mary Ellen Chase's *Mary Peters* (Macmillan), which also dealt lovingly and understandingly with a way of life far removed in temper from our own. This was a story of Maine seafaring folk of an elder generation, a book marked by a sense of spiritual values as keen as its sense of character. Closely similar in theme but of somewhat different character was Isabel Hopestill Carter's *Shipmates* (William R. Scott). Centered about the seafaring women of the Maine coast, it told a more dramatic story, flavored with humor, but less thoughtful in its content. A first novel, it introduced a writer of distinct promise.

Definitely nostalgic in mood was Joseph Hergesheimer's *The Foolscap Rose* (Knopf) the story of successive generations of a Pennsylvania paper manufacturing family, handled much in the fashion of a more successful earlier novel, *The Three Black Pennys.* Sentimental in temper, yet with a certain genuine charm, E. W. Lovell's *Legacy* (Norton), another first novel, recalled the pioneer phase of Wisconsin farm life. *The Hills Step Lightly,* (Morrow) by Alberta Pierson Hannum, introduced a new Southern novelist who wrote with humor and natural poetry of Kentucky mountain folk in the years immediately following the Civil War.

Grace Zaring Stone's *The Cold Journey* (Morrow), though an excursion into the American past, was set off from other novels in that category by a cool, intellectual approach. Telling the story of the Deerfield massacre of 1704, Mrs. Stone studied the contrast between the frontier community and its people and the French-Canadian civilization with which they were brought in contact. Also of a separate character was MacKinlay Kantor's *Long Remember* (Coward-McCann), a vigorously drawn picture of life in Gettysburg as the Civil War swirled about it.

CHRONICLE NOVELS

Among the novels which pictured the lives of successive generations, either in the increasingly favored trilogy form or within the scope of a single volume, there should be noted Ruth Suckow's *The Folks* (Farrar & Rinehart), a richly detailed story of Iowa small town life in the vein of sober realism, emphasizing changes in outlook since the war. In *Ridgeways* (Stokes), Frances Renard (Frances Fox) wrote of successive Kentucky generations from pre-Civil War days down to recent years—another promising first novel. Evelyn Scott, in *Breathe Upon These Slain* (Smith & Haas), leaving the American scene, wrote an English family history over a span of 40 years. Samuel Rogers, in *Dusk at the Grove* (Little, Brown) described in leisurely, reflective style the disintegration of a New England family.

The trilogy of life in the deep South which T. S. Stribling carried on in *The Forge* and *The Store* was concluded in *Unfinished Cathedral* (Doubleday, Doran), the whole a realistic study of uneven quality. Josephine Herbst, in *The Executioner Waits* (Harcourt, Brace) produced the second volume of a trilogy begun in *Pity Is Not Enough.* This work revealed itself as a thoughtful study in the obverse side of the American dream, the story of a family which tried to rise and failed. LeRoy MacLeod, in *The Crowded Hill* (Reynal & Hitchcock) carried on a story of life in the Wabash valley of Indiana which he began in *The Years of Peace.* The first volume dealt with the decade following the Civil War, the second with the years, 1876-1878. This work is written in a vein of ironic realism, and pictures the day by day life of a farming community.

HISTORICAL NOVELS

Historical novels in the more traditional sense included another story of the War of 1812 by Kenneth Roberts, *Captain Caution* (Doubleday, Doran). His work is distinguished by its historical accuracy and its swift and dramatic narrative style. Hoffman Birney, in *Grim Journey* (Minton, Balch), told the story of the tragic journey of the Donner party from Missouri to California in 1846. There were very few notable historical romances by American writers. Blair Niles, in *Maria Paluna* (Longmans, Green) glowingly re-created the period of the Spanish Conquest in Guatemala, and George Cronyn, in *The Fool of Venus*, with a lavish use of background, told the story of a 13th century troubadour.

CONTEMPORARY REGIONAL NOVELS

Regional novels with a contemporary background included Phil Stong's *Village Tale* (Harcourt, Brace), in which he shifted his scene from the farm to an Iowa village. Howell Vines, in *This Green Thicket World* (Little, Brown), wrote of backwoods Alabama in a first novel notable for the vivid quality of its local color. Mildred Walker's *Fireweed* (Harcourt, Brace), another first novel, wrote a story of second generation life in a Northern Michigan lumbering community.

THE NEW YORK SCENE

The yield of novels concerned with New York City life continued, as usual, to contain few books of distinction. Tess Slesinger's *The Unpossessed* (Simon & Schuster), introduced a lively talent which dealt in brightly satirical fashion, sometimes verging on caricature, with the city's self-conscious intellectuals. Isabel Paterson, in *The Golden Vanity* (Morrow), wrote a wittily perceptive story of the effect of the boom years and the depression upon the lives of three women. Margaret Cheney Dawson's first novel, *City Harvest* (Macmillan) painted on the restricted canvas of a New York New Year's Eve the inter-related lives of a group of friends. Leane Zugsmith's *The Reckoning* (Smith & Haas) was the story of the rise and fall of a criminal lawyer, against a background of Tammany politics.

THE "PROLETARIAN" NOVEL

The best received and the most successful venture among the novels dealing with the industrial scene was Albert Halper's *The Foundry* (Viking), which, with a sharply photographic realism, pictured employers and employed in a Chicago electrotyping plant. The fact that the novel was without a propagandist thesis added to its strength.

Robert Cantwell's *Land of Plenty* (Farrar & Rinehart) had its setting in a woodwork factory on the West coast. This novel, like so much proletarian fiction, suffered from a strictly imposed formula, and was successful chiefly in its meticulous rendering of atmosphere and externalities. Like *The Shadow Before* (McBride), by William Rollins, Jr., a strike was the climatic centre of the action, but the latter story, laid in a large mill town, was better dramatized and more successful in the creation of character. *Parched Earth* (Macmillan), by Arnold B. Armstrong, was of a purely propagandist type, and employed a symbolical method which had a distracting effect. Waldo Frank, in *The Death and Birth of David Markand* (Scribner) told a nebulously mystical story of a rich man's effort to orient himself in the world, ending in his determination to embrace the cause of the workers.

THE "HARD-BOILED" SCHOOL

Among the novels which employed the brutally naturalistic style used by numerous young writers in recent seasons, mention should be made of James T. Farrell's *The Young Manhood of Studs Lonigan* (Vanguard), another panel in his story of the development of a boy of the Chicago streets. This was a sensitive study in the disintegration of character, weakened by its author's unwillingness to admit any ameliorating influences into the environment depicted. *The Postman Always Rings Twice* (Knopf), by James Cain, a first novel, told with sharp economy of effect, is a story which does not rise above primary human impulses. John O'Hara's first novel, *Appointment in Samarra* (Harcourt, Brace), was a cleverly surfaced story with little depth, dealing with the life of a suburban country club set. Daniel Fuchs, another new writer, in *Summer in Williamsburg,* dealt photographically with life in a Jewish district of Brooklyn.

OTHER FIRST NOVELS

Many of the more promising first novels have already been listed, but there were several others which do not fall easily into the classifications which have been made. The most distinguished of these was probably Josephine Johnson's *Now in November* (Simon & Schuster). Told in simple but beautiful prose, this was a story of family tragedy, as related by one daughter, looking backward after the advent of the hopeless hour she had long foreseen. Richest in humor, perhaps, of the year's newcomers, was Victoria Lincoln, who in *February Hill* (Farrar & Rinehart), wrote of a shiftless family in Fall River, Mass.

One of the most original books of the year was Archie Binns's *Lightship* (Reynal & Hitchcock). Its story centered about the lives of the crew of a lightship stationed off the Pacific coast, and by means of cleverly executed ''flashbacks'' acquainted the reader with the backgrounds out of which these men entered their strange life together. How they faced their hour of common danger was told with a powerfully dramatic intensity. In *Slim* (Little, Brown), William Wister Haines told an exciting and moving story centered about the life of electric linemen. In *About Levy* (Scribner), Arthur Calder-Marshall wrote with considerable technical skill and excellent characterization the story of a man on trial for murder and the reactions of his friends.

Vardis Fisher's *Passions Spin the Plot* (Doubleday, Doran), although the second volume in a tetralogy, may be regarded as a first novel because its predecessor, published in Idaho, reached a very limited audience. This very long account, autobiographical and confessional in character, of a Western boy's slow growth into maturity, while containing many crudities, has fastened attention upon its author as a writer of innate power.

ESTABLISHED NOVELISTS

Sinclair Lewis.—The year's yield from writers of established reputation, aside from such titles as have already been noted under specific groupings, was comparatively thin. In *Work of Art* (Doubleday, Doran) Sinclair Lewis produced a novel which, while superior to its immediate predecessor, *Ann Vickers,* did not reach the level of *Babbitt, Arrowsmith* and *Dodsworth.* This story of an idealist in the hotel business was told, however, with enough vitality to make the reputation of a new writer.

Pearl S. Buck in *The Mother* (John Day) turned aside from her trilogy to write one of the best novels of the year in this simple life story of a Chinese peasant woman, translating her theme into universal if elemental human terms.

F. Scott Fitzgerald. In *Tender Is the Night* (Scribner) F. Scott Fitzgerald terminated an eight years' absence from the field of the novel with an interesting but not completely successful study of a disintegrating marriage.

Mary Roberts Rinehart, in *The State vs. Elinor Norton* (Farrar & Rinehart) turned from romance to write a realistic story of a woman's fight against ugly circumstances.

Anne Parrish, in *Sea Level* (Harper) wrote with humor and sarcasm of the voyagers on a world cruise.

James Branch Cabell, writing now as Branch Cabell, showed in *Smirt* (McBride) that no essential sea-change accompanied the shortening of his name.

Fannie Hurst in *Anitra's Dance* (Harper) told in characteristic fashion the story of a musical genius.

Others.—Rupert Hughes, in what was perhaps his best novel, *Love Song* (Harper) described the career of a great prima donna. W. R. Burnett, in *Goodbye to the Past* (Harper) made his departure from tales of action to a more serious theme but with less success. Floyd Dell's *The Golden Spike* (Farrar & Rinehart) showed him still occupied with the theme of young people in love and the readjustments of marriage. Booth Tarkington, with *Little Orvie* (Doubleday, Doran) returned successfully, in the vein of *Penrod,* to the theme of boyhood. Ludwig Lewisohn, in *An Altar in the Fields* (Harper) wrote a parable which was more interesting as a treatise on the good life than as a novel. Kay Boyle, whose reputation is as yet confined to the short story, wrote in *My Next Bride* (Harcourt, Brace) an ironic story of the Paris art colony. Stephen Vincent Benét, better known as poet than novelist, produced in *James Shore's Daughter* (Doubleday, Doran) an interesting psychological novel. Herbert Gorman, better known as a biographer, wrote in *Suzy* (Farrar & Rinehart) a story of wartime London and Paris.

THE SHORT STORY

The book of short stories which attracted most attention during the year was William Saroyan's *The Young Man on the Flying Trapeze* (Random House). Though the book's success was no doubt in part due to its bizarre title, it showed certain qualities of promise. Another newcomer whose work was free of formula was Whit Burnett, *The Maker of Signs* (Smith & Haas). New collections were published by Conrad Aiken, *Among the Lost People* (Scribner); William Faulkner, *Dr. Martino and Other Stories* (Smith & Haas); and Louis Bromfield, *Here Today and Gone Tomorrow* (Harper).

BRITISH AND FOREIGN NOVELS

What was in many respects the best novel of the year to be published in the United States was the work of a young Irish writer, Sean O'Faolain, whose *A Nest of Simple Folk* (Viking) bore the stamp of something close to genius. Other notable works from abroad were Phyllis Bentley's *A Modern Tragedy* (Macmillan); Lewis Grassic Gibbon's *Cloud Howe* (Doubleday, Doran); *Good-bye, Mr. Chips* (Little, Brown), by James Hilton; A. P. Herbert's *Holy Deadlock* (Doubleday, Doran); Rose Macaulay's *Going Abroad* (Harper); Eiluned Lewis's *Dew on the Grass* (Macmillan); Frank Swinnerton's *Elizabeth* (Doubleday, Doran); Sheila Kaye-Smith's *Superstition Corner* and *Gallybird* (Harper); Maurice Baring's *The Lonely Lady of Dulwich* (Knopf); Henry Handel Richardson's short stories, *The End of a Childhood* (Norton); "Elizabeth's" *The Jasmine Farm* (Doubleday, Doran), and Isaak Dinesen's (Baroness Blixen) *Seven Gothic Tales* (Smith & Haas).

Notable among the translations were Franz Werfel's heroic tale of Armenian resistance to the Turks, in *The Forty Days of Musa Dagh* (Viking); Ivan Bunin's *The Well of Days* (Knopf); the new volumes of Jules Romains's long work, *Men of Good Will* (Knopf); Lion Feuchtwanger's *The Oppermanns* (Viking); Louis-Ferdinand Céline's *Journey to the End of the Night* (Little, Brown); Thomas Mann's *Joseph and His Brethren* (Knopf); Knut Hamsun's *The Road Leads On* (Coward-McCann); Andre Malraux's *Man's Fate* (Little, Brown); Mikhail Sholokhov's *And Quiet Flows the Don* (Knopf); Luigi Pirandello's *The Naked Truth* (Dutton); Guy Mazeline's *The Wolves* (Macmillan); Maxence van der Meersch's *When the Looms Are Silent* (Morrow), and Hans Fallada's *The World Outside* (Simon & Schuster).

POETRY

BY PETER MONRO JACK

CRITIC AND LECTURER

GENERAL

If there is a general tendency in the year's large output of poetry it is toward a renewed national consciousness. This is a change in temper, not in art, for the verse is not notably original. Vigorous expression of aspects of nationalism and sectionalism will be found in Engle, Stuart, Flaccus, Hill, C. La Farge, Frost. Mainly descriptive and narrative, lengthly, readable and romantic, this verse has the popular appeal of the novel; and it has been popular. Engle's appropriately named *American Song,* for instance, was (until Miss Millay's *Wine from these Grapes*) the best selling book of the year. Coincidently a reaction has set in against the "obscure" poetry of Eliot and Pound. Fortunately so: they will receive better critical treatment and find their proper audience; they were too much read by people who fatigued themselves in the process and are now glad to let go. (A similar trend is summed up in Thomas Craven's *Modern Art*). The most discussed poet of the year is MacLeish, whose stand for poetry as an art has provoked both the nationalists and the Marxians. The latter have had to depend mainly on Schneider's *Comrade: Mister,* with the help of Auden's English poems. Lyric poetry is again represented, after three years, by Edna St. Vincent Millay. Newcomers distinguish themselves more for their communicative ability than for what they have to communicate. Poetry is in the air, but the year has been expectant rather than decisive.

AMERICAN SONG

With this title, Paul Engle, a Rhodes scholar from Iowa, will have to accept the praise and blame for the new nationalism in poetry. His "America Remembers," included in *American Song* (Doubleday, Doran) was awarded the prize for the best poem about A Century of Progress Exposition at Chicago by *Poetry: A Magazine of Verse.* In it he sums up American history and the American scene, with Whitman and Whitman's modern disciple, Hart Crane of *The Bridge,* in his mind, but more formally than the former and less lyrically and dramatically than the latter. The summing-up stops there. These are the things, says Mr. Engle in his catalogue, that America remembers, with no concern for why it should remember. It is not, apparently, for its challenge to emergent life, as in Whitman—and that today is surely the life of the worker,—nor for its sheer ecstasy in the symbolic scene, as in Crane; then for what? Only once does Engle break his imposed complacency to say,

You gave us shoes
For our feet, shirts for our back, will
you not give us
Power and peace for our hearts?

For the rest there is a vague hopefulness that commands no attention, that soon settles down into the reader's consciousness as a facile monotony. Vigorous as he is, his poetry shows lack of vigilance. The "Letter to an Elder Generation" is quite sure the elder generation is wrong and the younger generation right, but right about what, beyond, of course, courage, faith, splendor, progress, etc., is uncertain. It is good to see this affirmation, but we wish Mr. Engle had something to affirm. His romanticism is largely thoughtlessness.

REGIONAL NARRATIVES

An increasing number of good stories in verse, deriving from Robinson, Jeffers, and Benet, is appearing, notably this year Christopher La Farge's Rhode Island story, *Hoxie Sells His Acres* (Coward-McCann); Frances Frost's *Woman of this Earth* (Houghton, Mifflin); Frank Ernest Hill's *The Westward Star* (John Day), better verse than La Farge's and a more interesting story than Miss Frost's, going back to the Californian and Oregon trail of 1847, with plenty of adventure, romance and individual characterisation. Still more stubbornly regional is Jesse Stuart's *Man with a Bull-Tongue Plow* (Dutton), a loosely constructed anthology of Kentucky characters and scenes, by courtesy in sonnet form (there are 703), not distinguished poetry, but strong evidence of a new writer who may overcome his brashness and his contempt for art, to allow his energetic and sympathising observation decent expression. So far, his prose sketches are superior to his poetry.

AMERICANA

It is a relief to turn to genuine Americana in *American Ballads and*

Folksongs by John A. Lomax and Alan Lomax (Macmillan). This is a collection any country would be glad to own, a golden treasury of chanteys, mountain lonesómes, spirituals, reels, chants, cowboy songs and ballads, given in composite version, with their melodies. This veteran collector's nose for a song and his turn for editorial efficiency are alike admirable.

ARCHIBALD MACLEISH

The most distinguished book of the year, and the most discussed, chiefly in the radical magazines, is Archibald MacLeish's *Poems 1924–1933* (Houghton, Mifflin). The book is not a collected edition. It contains all the poems that MacLeish still respects, but not, for instance, ''The Happy Marriage.'' ''Conquistador'' is here, and now that we are familiar with its splendid imagery and sonorous chant, we may perhaps observe a serious fault in the structure, a disunion between two methods of presenting the narrative which prevents the poem from dwelling and developing in the mind as a great poem will. What is chiefly interesting, however, are the later poems, the best short poetry he has written, more incisive, more controlled, and with more to control, articulated line by heavy line, mostly, if the description be allowed, in unrhymed *terza rima*, and sometimes giving the single line too heavy a burden of rhetoric for the English language to bear. But it is not the style, which is admirable, that has provoked discussion, but the introspection and outlook of MacLeish. A seeming contradiction is involved. On the one hand MacLeish, following the former lead of Eliot, is now the foremost poet (with Ezra Pound) asserting the autonomy of poetry. A poet's material, his theme, his feeling, and his values, he implies, are his own. As he writes in ''Invocation to the Social Muse'':

There is nothing worse for our trade than to be in style:
He that goes naked goes farther at last than another:
Wrap the bard in a flag or a school and they'll jimmy his
Door down and be thick in his bed—for a month.

and as he ends:—

Is it just to demand of us also to bear arms?

On the other hand we must allow that this admirable later work refutes the principle of privateness, by its very assertion, by its propaganda in the teeth of his adversaries and in the face of adverse social conditions; and it is the better for that. The ''Frescoes for Mr. Rockefeller's City'' was possibly not designed to arouse controversy but it is no surprise that it should. The verse soon turns from an evocation of the American landscape and the pioneering labourers who had stamped on it their anonymous work to plunge into a satire of contemporary character: first of the disdainful expatriate; second of the ''Empire Builders''—Harriman, Vanderbilt, Morgan, Mellon, Bruce Barton—with an inset (''The Original Document under the Panel Paint'') of America actually being built in Jefferson's time; third of the Marxian revolutionaries who would lead America and know as much of it as a ferry ride to Hoboken can tell them. This neither flatters the right nor fights alongside the left, yet it is strongly felt and decisively expressed. What is MacLeish? the bewildered simplifiers of everything ask. The answer is that he is a poet, formulating and objectifying, while necessarily evaluating, the contemporary scene. The objectification and evaluation imply, of course, a public response, which MacLeish wrongly disparages, but he is entirely within his rights when he asserts that his poetry need not lead to any party or program. The pity and dismay from the last war takes form:

Now it is fifteen years you have lain in the meadow:
The boards at your face have gone through: the earth is
Packed down and the sound of the rain is fainter:
The roots of the first grass are dead.
It's a long time to lie in the earth with your honour:
The world Soldier the world has been moving on.

A more general disillusion with the way the world has moved on is in the even finer poem ''1933'' where by way of parallel and parable Elpenor tells Odysseus how to return, if he must return, to earth, avoiding the lure of the time-serving Tiresias (in our time, the dialectical materialism) and aiming for a place where life may begin again cleanly and from nothing.

"PROLETARIAN" POETRY

It is this apparent dead end to man's prospects that detractors have eagerly seized on, condemning MacLeish's talents by way of his point of view, and proclaiming that no poetry can be written without certain social or political beliefs. Muriel Rukeyser, a ''proletarian'' poet with an accent like Yeat's *vide ''and that enquiring man John Synge''* writes:

the thoughtful man MacLeish who bent his head
feeling the weight of the living; bent, and turned
the grave important face round to the dead.

Dismissing Jeffers, Eliot and MacLeish, Miss Rukeyser turns for achievement to the young poets and makers of the left, naming no names, however, and ending her poem — ''Citation'' written for Horace Gregory—in vague generalities. A number of ''proletarian'' poets, the best of whom seem to be Kenneth Fearing and Edwin Rolfe, have been writing verse praised for ''its Marxian point of view'' but unadventurous and pretty traditional in style. None approaches the energising rhythms of W. H. Auden (*Poems,* Random House) in creating original forms of satire or the lyrical sensibility of Stephen Spender (*Poems,* Random House), two radical importations from England. Isador Schneider shows courage in contrasting his early poems with his ''revolutionary'' poems in *Comrade: Mister* (Equinox Cooperative Press). The former have something of the distinctive diction of Hart Crane; they are close to the object and sensuously attractive. The latter are preceded by an essay ''Toward Revolutionary Poetry'' in which Schneider says: ''All of us look for a higher form of social integration, in Communist society, and the poets look to it for new subject matter.'' It will be a ''new orientation from the individual to the mass.'' In practice this comes to mean an orientation from the concrete to the abstract, from art to artifice, from poetry to polemic. At least it is so here, as Mr. Schneider allows himself to become more careless and naive in ''Worker to Merchant, King, Priest'' and ''The Sun, The Worker,'' trusting to be read in the right way rather than write in the best way. Yet his talent shows through his ambitious program.

T. S. ELIOT'S THE ROCK

As we seem to be following the fashion of the year in taking political stock of the poets, we may move to the extreme right to note that T. S. Eliot's *The Rock* (Harcourt, Brace) a wicked capitalistic and reactionary poem, is the most adventurous poetry of the year. It is no more than the words to a pageant staged in London and designed to help the Church of England building fund but it gives Eliot the chance that he desired in his Harvard lectures to be ''useful'' as a poet. We are shown in procession the patrons and builders of London's churches, from Mellitus, the first Bishop of London, downward, in a series of magnificent choruses, cockney interludes, costume insets, and, on occasion, critical comment. It is not, to be sure, a major work of Eliot's but it does show that, however good one's intentions are socially or politically or theologically, there is no substitute for poetry.

EZRA POUND'S CANTOS

Ezra Pound continues, *Eleven New Cantos XXXI-XLI* (Farrar & Rinehart) his work in progress toward his hundredth canto. W. B. Yeats says in his little known *A Packet for Ezra Pound* (Cuala Press, Dublin, 1929) that the last canto will have shown ''a structure like that of a Bach fugue.'' It is hard to say in the middle of a first hearing of a contemplated Bach fugue what its resolution will be, and so with these cantos. The seemingly fortuitous themes shift from the American and French revolutions, documented from the letters and diary of Jefferson and Adams, to the questions of slavery and munitions, sometimes pointed toward the present, sometimes back to the Renaissance, and intermixed with poems on love and the spring, often in the troubadour manner. Though the general meaning is not always apparent, the particular beauty and rightness are obvious.

SHORTER LYRICS

Miss Millay's *Wine from these Grapes* (Harper) shows that she is still the popular poet of America. The quality of surprising observation, neatly and disarmingly registered, is still her best technique.

The smell of the small
alyssum that grows wild here
Is in the air. It is a childish morning.

It is, shall we say, even neater than Shakespeare. The lyrics have, if not a more mature content, at least a more serious intent. Death is the recurrent theme and the last section of sardonic sonnets is called "Epitaph for the Race of Man." There is a brooding melancholy to the poems, not unpleasing, and one has the notion that Miss Millay enjoyed patterning it with her verbal dexterity. Genevieve Taggard's best book of poems, *Not Mine to Finish* (Harper) is a miscellany in various styles from Greek-Anthology-imagist to revolutionary-illiterate. Her best style is the descriptive and semi-metaphysical, as in "Do as I tell you."

Lean, and write, and be done and
be gone
And the wind be with you.

David McCord's *The Crows* (Scribner) should be noted for their unusual precision. It would be ungrateful not to mention the charm of Miss McGinley's light verse, *On the Contrary* (Doubleday, Doran). Of newcomers there are two young writers of distinction: James Agee of *Permit Me Voyage* (Yale Univ. Press), technically learned, whose poems take their title from Hart Crane and whose feeling is not unlike Vaughan, and Elder Olson whose *Thing of Sorrow* (Macmillan) has a fine purity in words.

E. A. Robinson's *Amaranth* (Macmillan), a long allegory of self-delusion, is less convincing than many of his poems. Leonard Bacon, in *Dream and Action* (Harper) has written the story of Arthur Rimbaud in skilful Don Juan stanzas; unfortunately he has chosen to concentrate on Rimbaud the trader, distorting somewhat the poet's character. The year's best translation is probably William Ellery Leonard's *Gilgamesh* (Viking Press), an old Babylonian epic, or part of it, of great beauty and power. Mention should be made of the *Collected Poems* of William Carlos Williams (Objectivist Press), bright bits of experience in the imagist tradition though this recorder fails to enjoy them as much as Mr. Williams does. The excellent habit of *The New Republic* in publishing short anthologies of groups of poets is to be applauded. This year they have published Proletarian poets, Californian poets, Southern poets, and young English poets, edited respectively by S. Funaroff, Yvor Winters, Robert Penn Warren, and John Lehmann.

HISTORY

By Henry Steele Commager

Professor, New York University

GENERAL

Trend toward Scholarly Work.—Particularly notable in the historical literature of 1934 has been the trend away from popularization and vulgarization and toward substantial and scholarly work. While glib interpretations and meretricious biographies continued to be published, they were neither so numerous nor so successful as in earlier years. For the publication of scholarly works in a year of acute depression the university presses were in large part responsible.

Regional Studies. — While some of the larger university presses have sponsored a wide variety of publications, the interest has been increasingly upon regional studies, and the contribution of the universities and learned societies to the development of regionalism and a sound provincialism has been a significant one.

Source Material. — Another task which has been assumed largely by the non-commercial presses is the publication of source material; notable in this connection are the *Records of Civilization* (Columbia), *Overland to the Pacific* series (Colorado College and the Denver Public Library), *Legal Records* series (Am. Historical Assn.), *Studies in the History of American Agriculture* (Columbia), and others of a similar character.

Larger Cooperative Works. — Of the larger cooperative works there appeared volumes XIII and XIV of the *Dictionary of American Biography* (Scribner), embracing Mills to Oglesby and Oglethorpe to Platner, and volumes XII, XIII, and XIV of the *Encyclopaedia of the Social Sciences* (Macmillan), covering subjects from Partnership to Punishment, from Puritanism to Service, and from Servitude to Trade Associations. These volumes abundantly sustained the high reputation for accuracy, thoroughness and critical acumen already established.

THE AMERICAN SCENE

National Policy.—Some years ago Prof. Charles A. Beard embarked upon an examination of the history and significance of the concept of ''national interest.'' The results of that investigation, no less important to statesmen than to students of national policy, are presented in two volumes: *The Idea of National Interest* and *The Open Door at Home* (Macmillan). In the first of these volumes, Mr. Beard has traced the historical and functional meaning of the term 'national interest', noted its applications in domestic and foreign policy, in territorial and economic expansion, and recorded the implications and consequences of an uncritical acceptance of the concept itself. In the second volume he has announced the necessity of a new national policy which would emphasize the domestic rather than the foreign interests of the nation.

Economic and Political.—In *The Decline of American Capitalism* (Covici-Friede), Lewis Corey has furnished an economic interpretation of American history, thorough, scholarly, and critical, and unmarred by the dialectic common to most Marxist interpretations. L. Symes and C. Travers, *Rebel America* (Harper), is a sympathetic but somewhat superficial chronicle of left wing social and political activities in America, with the emphasis upon revolutionary rather than reform activities. M. Josephson's *The Robber Barons* (Harcourt), is chiefly concerned with an examination of the misdeeds of the railroad builders of the post Civil-War generation, but contains some material on other industrialists and financiers. Based largely upon secondary material, the book brings together in convenient and readable form much that is already generally known.

Social History. — A. C. Cole's *The Irrepressible Conflict, 1850-1865,* constitutes volume VII of the *History of American Life* (A. M. Schlesinger and D. R. Fox, eds., Macmillan). Based upon a large body of source material and presented in a pleasing style it affords a most satsfactory and critical introduction to the social background of the Civil War period, and fully sustains the high standards of scholarship already established by this invaluable series. In *The Sentimental Years, 1836-1860* (Appleton), E. D. Branch traces in a lively and entertaining but superficial fashion humanitarianism and reform, religion, literature, the drama, and kindred social manifestations in the pre-war generation. The publication of J. A. and A. Lomax's *American Ballads and Folksongs* (Macmillan), is another indication of the widespread interest in American folk customs and character. The Lomaxes have brought together a large and representative collection of folksongs, ballads and chanties; they have included the music and elaborated the whole with discriminating comment. Scarcely less important to the student of social history is W. Murrell's *History of American Graphic Humor* (Whitney Museum), a selection of cartoons and caricatures illustrating American history and society prior to the Civil War. D. Rivera's *Portrait of America* (Covici-Friede), is a collection of the more significant paintings portraying American society by the most widely celebrated of contemporary mural painters; the accompanying text adds nothing to the value of the volume. M. Hillquit's *Loose Leaves from a Busy Life* (Macmillan) and L. Wald's *Windows on Henry Street* (Little, Brown), contribute toward our understanding of the problems of social reform in an urbanized America. Of value alike to the sociologist and the historian is *Social Work and the Courts* (Univ. of Chicago), a collection of statutes and judicial decisions edited by the distinguished scholar, S. P. Breckenridge.

Foreign Affairs. — Contributions to the study of American diplomacy have been both numerous and distinguished. The volumes by C. A. Beard already noted suggest a new orientation of American foreign policy. W. S. Holt's *Treaties Defeated by the Senate* (Hopkins), surveys the conflict between the Executive and the Senate with particular reference to the more recent period and emphasizes the personal and political influences that have motivated recalcitrant Senators. R. M. Cooper's *American Consultation in World Affairs* (Macmillan), calls attention to the American contribution to the maintenance of peace since the World War. C. Seymour's *American Diplomacy During the World War* (Hopkins), is the most thorough and scholarly analysis of that subject that has yet appeared. Professor Seymour analyzes the diplomatic problems facing the Wilson Administration in the first years, of the War, the efforts to mediate between the warring powers, the failure of neutrality, the diplomatic aspects of military cooperation, and the attempt of Wilson to persuade the Allied Governments to agree to reasonable terms of peace and to cooperate in the establishment of a League of Nations. The volume emphasizes particularly the extent to which American diplomacy of this period was controlled by the President and the strictly political and diplomatic considerations that actuated Mr. Wilson in his masterly conduct of foreign affairs.

The diplomatic background of the Louisiana Purchase continues to attract the attention of students: A. P. Whitaker's *Mississippi Question, 1795-1803* (Appleton), a continuation of his *Spanish-American Frontier,* is a careful and brilliantly phrased analysis of the factors that induced Spain to cede Louisiana to France; E. W. Lyon's *Louisiana in French Diplomacy* (Univ. of Oklahoma), examines the French background of the final cession to the United States. Three monographs deal with various phases of the American Caribbean policy: A. A. Ettinger's *Mission to Spain of Pierre Soulé* (Yale), analyzes an early attempt to secure Cuba; J. E. Wisan's *The Cuban Crisis as Reflected in the New York Press* (Columbia), presents in great detail the somewhat hackneyed story of the influence of the sensational press in precipitating the Spanish War; C. C. Tansill's *Diplomatic Relations between the United States and the Dominican Republic, 1798-1906* (American Univ.), is a scholarly examination of a neglected subject. T. A. Bailey's *Theodore Roosevelt and the Japanese American Crisis* (Stanford), is an account of the diplomatic complications arising out of the race problem on the Pacific coast. G. Nerval's *Autopsy of the Monroe Doctrine* (Macmillan), a severe indictment of the policy and practice of American hegemony in the western hemisphere, is a furious threshing of dry straw. The contributors to J. Barnes' (ed.), *Empire in the East* (Doubleday) agree in their criticism of American policy in the Orient and demand a reorientation of that policy on the basis of political and economic realities instead of sentiment.

AMERICAN COLONIAL HISTORY

Work of major importance in the field of colonial history is the first volume of C. M. Andrews' *Colonial Period of American History* (Yale). The volume covers the European and English background, and the establishment of the colonies in Virginia, New England and Bermuda down to approximately the middle of the seventeenth century. Professor Andrews' peculiar contribution to the interpretation of colonial history, the emphasis upon the imperial point of view and upon the island colonies, is here fully illustrated. The book based upon a lifetime of research inaugurates what promises to be one of the great monuments of American historical scholarship. The Massachusettes State House boasts the symbol of the cod; *R. B. Lounsbury's British Fisheries at New Foundland, 1634-1763* (Yale), is a careful monograph on the origin of that interest which engaged the energies of New England statesmen from John Adams to George F. Hoar. A. Stanford's *Men, Fish and Boats* (Morrow), is a pictorial history of the North Atlantic Fisheries. Other monographs of importance in this field are H. M. Morais *Deism in Eighteenth Century America* (Columbia); J. W. Caughey, *Bernardo de Galvez in Louisiana* (Univ. of California), a study of Spanish colonial administration from 1776 to 1783, and E. J. Hamilton's *American Treasure and the Price Revolution in Spain* (Harvard). The most valuable body of source material was that presented in *Proceedings of the Maryland Court of Appeals,* edited by C. T. Bond and R. B. Morris —the first volume of a new series of Legal Records sponsored by the American Historical Association. With Jared Eliot's *Essays Upon Field Husbandry in New England, 1748-1762,* H. J. Carman and R. G. Tugwell inaugurated the new Columbia (Univ. of Pennsylvania), and R. G. *American Agriculture.* Other noteworthy additions to the sources of colonial history are G. Chinard (ed.), *A Huguenot Exile in Virginia* (Press of the Pioneers), G. H. Ryder (ed.), *Letters To and From Caesar Rodney* (Univ. of Pennsylvania), and R. G. Albion and L. Dodson's continuation of the *Journal of Philip Vickers Fithian, 1775-76* (Princeton).

THE AMERICAN REVOLUTION

Fewer books dealing with the Revolutionary period were published than in any recent year, but, two, at least, constitute permanent contributions to our history. In *The First Year of the American Revolution* (Houghton), Allen French presents the most thorough and scholarly survey of the military history of the period from Lexington to the British evacuation of Boston that has ever appeared. Though the narrative is almost entirely a military one, considerable attention is given to the political factors that conditioned military events. Painstakingly accurate and detailed, and built upon a broad foundation of source material, the book is written in a spirited style that should attract the general reader as well as the student. In *Canada and the American Revolution* (Macmillan), G. M. Wrong continues his study of the *Rise and Fall of New France* (2 vols.) published in 1928.

SECTIONALISM AND THE CIVIL WAR

The causes, conduct and consequences of the American Civil War continued to fascinate students of history more compellingly, perhaps, than any other major subject of inquiry. In *The Eve of Conflict: Stephen A. Douglas and the Needless War* (Houghton), G. F. Milton elaborates the thesis that the war, far from being an ''irrepressible conflict'' might have been avoided had the nation been able to follow the policy and leadership of Douglas. The book is valuable for its careful analysis of the position of the moderates, North and South, and for its painstaking examination of the actual process by which moderates were frustrated and defeated by extremists who constituted a minority on each side. The book constitutes not only the most ambitious survey of the period from 1850 to 1860 that has been attempted since Rhodes' volumes, but is at the same time a successful rehabilitation of the reputation of the much-abused Douglas. *America's Tragedy* (Scribner), by J. T. Adams is a sketchy but thoughtful survey of the sectional struggle between the North and the South from its origins in the seventeenth century to the end of Reconstruction. In *The Secession Movement in Virginia, 1847-61* (Garrett & Massie), H. T. Shanks adds another valuable monograph to the growing literature which examines the political and social background of secession in particular southern states. E. Lonn's *Salt in the Confederacy* (Neale), calls attention to the importance of that humble but essential ingredient in the Civil War, and analyzes some of the political and economic difficulties that arose from the shortage of the salt supply and the efforts of the various governments to supplement and to control it.

THE SOUTH

The most interesting of recent books upon the South is the collection of essays which W. T. Couch has brought together in *Culture in the South* (Univ. of N. C.). Some thirty contributors survey here almost every phase of southern life and letters, from physiography to negro folk songs and recent industrial disputes. The volume is characterized by considerable objectivity, and some of the essays constitute real contributions to our knowledge of southern conditions and problems. E. Q. Hawk's *Economic History of the South* (Prentice-Hall), is a pedestrian piece of work, quite lacking in critical acumen, and with the emphasis overwhelmingly on the period prior to reconstruction. C. S. John's *Shadow of the Plantation* (Univ. of Chicago), is an interesting pictorial survey of the plantation negro.

THE WEST

The flood of books on the history of the West continues unabated; more particularly it is the Indian problem, the Mining Kingdom, and the institutional history of the Southwest that has commanded the attention of students. In the field of Indian history, the prolific Grand Foreman has continued in *The Five Civilized Tribes* (Univ. of Oklahoma), his invaluable researches in the history of the Southern Indians; A. Debo has told the story of the *Rise and Fall of the Choctaw Republic* (Univ. of Oklahoma), and J. H. Seger has remembered the religious and educational activities of the whites in *Early Days Among the Cheyenne and Arahapoe Indians* (Univ. of Oklahoma). S. Vestal's *Warpath: the Story of the Fighting Sioux* (Houghton), is a fascinating biography of Chief White Bull as told by the famous Indian chief himself. Additional material on the history of the Sioux is to be found in S. Vestal's *New Sources of Indian History, 1850-91* (Univ. of Oklahoma) and R. N. Richardson's *Comanche Barrier to South Plains Settlement* (Clark). P. L. Wellman's *Death on the Prairie* (Macmillan), is a somewhat superficial chronicle of Indian warfare from the Civil War to the nineties.

The story of the Mining Kingdom continues to be told in romantic accents, to the neglect of institutional and of economic history. In *A Golden Highway* (Bobbs-Merrill), C. B. Glassock records again the excitement of the Gold Rush of '49. G. D. Lyman's *Saga of the Comstock Lode* (Scribner), and M. Michelson's *Wonderlode of Silver and Gold* (Stratford), both deal with boom days in Comstock and Virginia City, Nevada. E. Cunningham's *Triggernometry* (Press of the Pioneers) is a popular history of the famous gun-fighters of the early West.

In *The Greater Southwest* (Clark), R. N. Richardson and C. C. Rister attempt a survey of the whole history of the Southwest from its Spanish beginnings to the present. R. Calvin's *Sky Determines* (Macmillan), is a geographical interpretation of the history of the southwest told with considerable literary skill. W. C. Holden's *The Spur Ranch* (Christopher), is extremely valuable for its illustrations of many phases of the activities of the cattle kingdom. In *Old Waybills* (Appleton), A. F. Harlow continues his fascinating study of the more obscure agencies of transportation with a history of the early express business in the West. A. L. Bird's *Boise: the Peace Valley* (Caxton), is a model monograph on local history and institutions.

G. C. Quiett's *They Built the West* (Appleton), is primarily concerned with the influence of the railroads in the founding of the cities of the West, but contains much miscellaneous material on the railroad builders which might be contrasted with the interpretation of M. Josephson in *Robber Barons.* The most valuable monograph on the railroads and the West is P. W. Gates' *Illinois Central Railroad and its Colonization Work* (Harvard), a substantial and scholarly examination of the methods by which the railroad attracted settlers to its lands. The most ambitious project in the field of Western history in this generation was inaugurated some three years ago with the publication of the first volume of the *Overland to the Pacific Series,* a documentary and narrative history of the Far West, under the general editorial supervision of the distinguished Archer Butler Hulbert, sponsored by the Stewart Commission on Western History of Colorado and published jointly by Colorado College and the Denver Public Library. Despite the decease of Professor Hulbert, work on the series has gone forward and two new volumes have been added to the first group of narratives: *Where Rolls the Oregon,* and *The Call of the Columbia.* Both volumes contain a wide and well selected variety of source material much of it never before printed. Of almost equal importance is the work which Professor Bolton has been carrying on in making available the sources of the early history of California. Some years ago Professor Bolton edited five volumes of documentary history on Anza's expedition to San Francisco Bay. To this he has now added the narrative of one of Anza's comrades, *Font's Complete Diary: a Chronicle of the Founding of San Francisco* (Univ. of California). M. S. Sullivan, *The Travels of Jedediah Smith* (Fine Arts Press), includes the journal of the explorer; O. Lewis, ed. *California in 1846* (Grabhorn), is a collection of letters from various persons.

STATE AND LOCAL HISTORY

Volumes five and six of the cooperative *History of the State of New York* (Columbia), maintained the high standards of scholarship and readability set by the earlier volumes; Volume V, *Conquering the Wilderness,* covers the history of the State from the ratification of the Federal Constitution to the building of the Erie Canal; Volume VI, *The Age of Reform* continues the story down to the fifties with special emphasis upon economic and industrial problems. R. C. McKay's *South Street* (Putnam) is a maritime history of New York City; H. C. Brown's *Story of Old New York* (Dutton) is a lively account of New York in the colonial and early national period; *Metropolis* (Harper), with photography by A. Rogers and comment by F. L. Allen, is one of the best of the pictorial surveys. C. H. Ambler's *West Virginia,* and E. H. Roseboom and F. P. Weisenberger's *Ohio* (Prentice-Hall), are designed for textbooks.

POLITICAL AND CONSTITUTIONAL

Comparatively little attention has been given to political history though the constitutional problems arising out of the present recovery program have given rise to several suggestive treatises. E. S. Corwin's *Twilight of the Supreme Court* (Yale), appraises various features of the New Deal in the light of established constitutional principles. M. F. Gallagher's *Government Rules Industry* (Oxford), is exclusively concerned with the legal and constitutional character of the National Recovery Act. A. T. Mason's *Brandeis: Lawyer and Judge in the Modern State* (Princeton), is more a study of social reform and the constitution than a biography of the distinguished Justice. E. E. Robinson, *The Presidential Vote, 1896-1932* (Stanford), is an immensely valuable analysis of the presidential votes by state and county. H. S. Commager (ed.), *Documents of American History* (Crofts), contains many documents of a political and constitutional character.

THE ANCIENT WORLD AND THE FAR EAST

J. G. Winter's *Life and Letters in the Papyri* (Michigan), the Jerome Lectures at the University of Michigan, throws new light on the political and cultural relations of Rome and Egypt, on early Christianity, and on Greek and Roman literature. W. L. Westermann and E. S. Hasenoehrl (eds.), *Zenon Papyri* (Columbia) presents examples of business papers of the third century from Palestine and Egypt. R. M. Haywood's *Studies on Scipio Africanus* (Hopkins) discusses the administrative and non-military policies of the great Roman proconsol. T. R. S. Broughton's *The Romanization of African Proconsularis* (Hopkins) sketches the Roman regime in Africa after the destruction of Carthage and until the time of the Severi with particular reference to the adaptations of Roman institutions to the African environment. V. G. Childe's *New Light on the Most Ancient East* (Appleton) presents the results of researches and excavations in the Near East. G. P. Baker's *Twelve Centuries of Rome* (Dodd, Mead) is a general history of Rome with emphasis upon military affairs. S. Runciman's *Byzantine Civilization* (Longmans) is a cultural survey. The fruit of a lifetime of research, K. S. Latourette's *The Chinese: Their History and Culture* (2 Vols., Macmillan) is probably the most scholarly and discriminating interpretation of Chinese culture in the whole of English historical literature. The first volume presents an historical survey from the most ancient times to the present; the second is devoted to an interpretation of the religious, social and cultural interests of the Chinese people.

EUROPEAN HISTORY

Medieval.—Practically all of the important publications in the field of medieval history appeared under the auspices of university presses or of the Medieval Academy of America. F. Edler (ed.), *Glossary of Medieval Terms of Business, 1200-1600* (Medieval Academy), is based upon researches in the Medici documents. W. E. Lunt's *Papal Revenues in the Middle Ages* (2 vols., Columbia), and E. Emerton (ed.), *Correspondence of Pope Gregory VII: Selected Letters from the Registrum* (Columbia) constitute additions to the Columbia University Records of Civilization series. F. C. Lane, *Venetian Ships and Shipbuilders of the Renaissance* (Hopkins), is a learned monograph on a fascinating chapter of the history of commerce. G. Seldes, *The Vatican: Yesterday, Today, Tomorrow* (Harper), is a general survey of the history and the political relationships of the Papacy.

Modern. — The second volume of Preserved Smith's *History of Modern Culture* (Holt), covering the period of the enlightenment, is noteworthy for those same qualities that distinguished its predecessor: a vast erudition, incisive criticism, intelligent generalization and a brilliant literary style. Particularly valuable are Professor Smith's chapters on the achievement of science and on the rise of historiography. With volume four of the *Rise of the Spanish Empire: Philip the Prudent* (Macmillan), R. B. Merriman brings to a close the most ambitious survey of the beginning of modern Spain since Prescott. Two volumes inaugurated a new series, *The History of Modern Europe* (Harper), under the general editorial supervision of Prof. W. L. Langer: C. Brinton's brilliant synthesis *A Decade of Revolution, 1789–1799,* and F. B. Artz's *Reaction and Revolution, 1814–1832.* Both volumes are based upon a careful examination of a vast body of source material and contain admirable bibliographical essays. D. O. Wagner's *Social Reformers from Adam Smith to John Dewey* (Macmillan), contains illustrative readings in the history of social reform with illuminating comment by the editor. In *Condorcet and the Rise of Liberalism in France* (Harcourt), J. S. Schapiro analyzes the contributions of one of the Encyclopaedists to the enlightenment. K. R. Greenfield's *Economics and Liberalism in the Risorgimento: a Study of Nationalism in Lombardy, 1814–1848* (Hopkins), is one of the most scholarly contributions to Italian history in our literature. In *National Romanticism in Norway* (Columbia), O. J. Falnes notes the origins of Norwegian nationalism in the literature, folk-lore, ballads, history, and philology of the early nineteenth century. Other monographs of note are B. F. Hyslop's *French Nationalism in 1789 According to the General Cahiers* and C. T. Muret, *French Royalist Doctrine since the Revolution* (Columbia), and C. W. Clark, *Franz Joseph and Bismark: the Diplomacy of Austria before the War of 1866* (Harvard).

English History. — The impressive tradition of American scholarship in the field of English history was amply sustained by the publications of the year. C. Read's *Tudor Bibliography, 1485–1603* (Oxford), admirable in its thoroughness and exactness, reveals the mastery of this period by the author of the Walsingham. J. U. Nef's *Rise of the British Coal Industry* (2 vols. Univ. of Chicago), is a monumental history of the industry prior to 1700, especially valuable for its analysis of the social and political background of this fundamental industry. In *Elizabethan Pageantry* (Studio), H. K. Morse surveyed custom and decoration of Elizabethan England and in *Middle Class Culture in Elizabethan England* (Univ. of N. C.), L. B. Wright presented a well-organized array of data on a difficult and neglected subject. In the Columbia University *Records of Civilization* appeared W. Haller's *Tracts of Liberty in the Puritan Revolution, 1628-1647* (3 vols.); the first volume contains editorial comment, the second and third a collection of lesser known tracts. A new edition of G. B. Adam's standard *Constitutional History of England* (Holt), contained additional chapters by R. L. Schuyler. Monographs of note are: C. Karraker, *The Hispaniola Treasure* (Univ. of Pennsylvania); C. H. and M. Quennell, *History of Everyday Things in England, 1735-1851* (Scribner); H. Finer, *English Local Government* (Columbia); W. P. Maddox, *Foreign Relations in British Labour Politics, 1900–1924* (Harvard); D. E. Owen, *British Opium Policy in China* (Yale); R. L. Lovell, *The Struggle for South Africa, 1875–1899*, and E. Thompson and G. T. Garratt, *Rise and Fulfillment of British Rule in India* (Macmillan).

CANADA AND LATIN-AMERICA

A. L. Burt's *The Old Province of Quebec* (Minnesota), is a social and political history of Quebec between 1760 and 1791, thorough, scholarly, and carefully documented. H. Strode's *The Pageant of Cuba* (Smith and Haas), is a general history, popular rather than scholarly. Unabated interest in the French occupation of Mexico is indicated by two publications: J. L. Blasio's *Maximilian: Emperor of Mexico* (Yale), is a heretofore unpublished diary by the private secretary to the Emperor; B. Harding's *Phantom Crown: the Story of Maximilian and Carlota of Mexico* (Bobbs-Merrill), is a well-written popular account. L. E. Fisher's *Background of the Revolution for Mexican Independence* (Christopher), is a valuable monograph. Volumes III and IV of the *Diplomatic Correspondence of the United States, Inter-American Affairs, 1831–1860* (Carnegie), edited by W. R. Manning, are devoted to a selection of documents from the correspondence with the Central American states. Prof. C. H. Haring's Lowell lectures on *South American Progress* (Harvard), present a general survey of recent conditions which attempts to explain in part the political immaturity of the Latin-American peoples. In *Fire on the Andes* (Lippincott), C. Beals narrates the history of Peru from the time of the Incas to the present, brilliantly interprets the character and illuminates the problems of the Peruvian people. J. L. Mecham's *Church and State in Latin America* (Univ. of N. C.), is a general but thorough and scholarly account of a problem that has always been peculiarly significant for the Latin American peoples; M. Waters' *History of the Church of Venezuela* (Univ. of N. C.), inquires more particularly into the question of the relative impotence of the Catholic church in Venezuela.

BIOGRAPHY

By Malcolm O. Young

Reference Librarian, Princeton University

GENERAL

When the Pulitzer prizes for 1933 were announced in May, 1934, a considerable amount of criticism immediately arose. But there was one choice with which no one did or could disagree, Tyler Dennett's *John Hay* (Dodd, Mead). This well-written, balanced, scholarly work deserved the prize. The standard of biography was high in 1933, and 1934 has retained a standard at least as high. Cheap debunking is no longer fashionable. Fewer books in the field have been compiled for the mere sake of sensationalism. Autobiography is an increasing form, and, though this does not mean necessarily scholarly volumes, illuminating side lights on varied people and periods result, not to mention furnishing highly entertaining books. The total number of biographies for the year is probably as large as before, and the choice to be mentioned here is, because of the numerous worth-while productions, more than difficult.

COLLECTIVE AND REFERENCE

Every year there appear new *Who's Who* volumes, most of them of no great value. *America's Young Men* (Los Angeles, Blank Pub. Co.) seems to be above the average of such publications, including many names of active men not found elsewhere, with apparently trustworthy information.

Another useful reference work is Stanley J. Kunitz's *Authors Today and Yesterday* (N. Y., Wilson), a continuation of *Living Authors*, giving us data, among others, of minor writers difficult to identify in other sources.

There is a group of volumes containing essays on several individuals. Josephson's *The Robber Barons* (Harcourt) is a dramatic, sometimes very dark picture of great American capitalists of the period 1861 to 1901. Marquis James', *They Had their Hour* (Bobbs-Merrill) is a live, though not profound, series of pictures. *The Man of the Renaissance*:—Four lawgivers, Savonarola, Machiavelli, Castiglione, Aretino (Viking) is one of the most popular books of the year, and worthily so. Mark Longaker's *Contemporary Biography* (U. of Penn. Press) is an analysis of Strachey, Bradford, Maurois, Ludwig, Belloc and Guedalla. Charles Reynolds Brown's *They were Giants* (Macmillan) is a series of sketches of certain 19th century individuals who were great because of their enduring influence. *The New Dealers*, by Unofficial Observer (Simon and Schuster) at least gives a personal side of the present Administration. A readable and illuminating book is Lyman Beecher Stowe's *Saints, Sinners and Beechers* (Bobbs-Merrill).

THE PRESIDENTS

The list of books on the chief executives is unusually brief. An extraordinary manuscript find is the basis of *Private Affairs of George Washington, From the Record and Accounts of Tobias Lear, Esquire, His Secretary*, edited by Stephen Decatur, Jr. (Houghton, Mifflin). Dodd, Mead and Company continue their excellent series, American Political Leaders, with George F. Howe's *Chester A. Arthur: a Quarter Century of Machine Politics*. This minor character and the period are so well portrayed that it is one of the valuable books of the year. Edith Gittings Reid's long promised *Woodrow Wilson: the Caricature, the Myth and the Man* (Oxford) has appeared. It adds nothing startlingly new, but any new interpretation from a personal friend of this puzzling statesman is welcomed. Theodore G. Joslin, secretary to Herbert Hoover, presents *Hoover off the Record* (Doubleday, Doran). A survey especially of 1931 to 1933 *Forty-two Years in the White House* (Houghton, Mifflin) is a gossipy, rather too personal series of pictures of the presidents from Harrison to Franklin Roosevelt. It is illuminating and excellent reading.

MEN OF ACTION

Constance Rourke, whose *American Humor* was so successful, has done a *Life of Davy Crockett* (Harcourt). Charles M. Wilson's *Meriwether Lewis of Lewis and Clark* (Crowell) is strangely enough the only biography of the leader of this always interesting expedition. It is sympathetically and somewhat romantically written. A hitherto unknown writer, Douglas S. Freeman has written one of the most important books of the year, *Robert E. Lee* (Scribner). This work, in two volumes to be followed by two more, is a definitive work, done after years of collecting and studying material. Robert W. Winston, who wrote an excellent life of Andrew Johnson, has now written *Robert E. Lee* (Morrow), containing some new material and interpreting him well. J. F. C. Fuller, an Englishman, in his *Grant and Lee* (Scribner), has done an outstanding study in personality and leadership. R. R. McCormick's *Ulysses S. Grant* (Appleton-Century) emphasises the military side. William Starr Myers' *General George Brinton McClellan* (Appleton-Century), is a study in personality, carefully done after much study, with some sidelights on Lincoln. *The Rebel Raider: a Life of John Hunt Morgan*, by Howard Swiggart (Bobbs-Merrill), does not leave a high reputation, but being carefully done, the work is hardly in the 'debunking' class. The same is true of F. F. Van de Water's *Glory Hunter* (Bobbs-Merrill), a work taking much glory from Custer. Frederick Palmer, whose life of Newton D. Baker was an outstanding work, is well qualified to write *Bliss, Peacemaker* (Dodd, Mead). This includes many letters and papers. The Gen. Bliss's part in the Peace Conference is perhaps the most valuable portion of the book.

MEN OF PUBLIC AFFAIRS

The outstanding work in this group is George Fort Milton's *The Eve of Conflict* (Houghton, Mifflin). Undoubtedly this is the best picture of Stephen Douglas. The whole book questions some of the accepted theories concerning the man and period. Of as high calibre is David S. Muzzey's *James G. Blaine, a Political Idol of Other Days* (Dodd, Mead), a scholarly, readable work. Former Senator Frederick H. Gillett is well qualified for several reasons to write the life of George Frisbie Hoar, a senator through an important period (Houghton, Mifflin). Very entertaining and in a way illuminating, but not a great work, is Alfred Cohn's and J. Chisholm's *Take the Witness* (Stokes) a life of Earl Rogers, criminal lawyer. Other important works are, C. E. Vulliamy's *William Penn* (Scribner); *Gouverneur Morris, Witness of Two Revolutions* (Funk & Wagnalls); *The Public Career of William M. Evarts* (Univ. of California).

MEN OF LETTERS AND MUSIC

Two early literary figures are subjects of scholarly works: *The Early Days of Joel Barlow, a Connecticut Wit* by Theodore A. Zunder (Yale Press), a study of his life and works, 1754-87; *Constance Fenimore Woolson, Literary Pioneer* by John D. Kern (Univ. of Penn). A definitive work, based on original papers and done by an authority, is *Dostoevsky*, by Avralin Yarmolinsky (Harcourt). There are two autobiographical works by men whom we place in "the older generation." Robert Grant, period novelist, has compiled his *Autobiography* (Houghton, Mifflin), and Hamlin Garland's *Afternoon Neighbors* (Macmillan) is his latest volume of pleasant reminiscence. Two critical works on men of the very present generation contain biographical features, L. C. Powells' *Robinson Jeffers* (Los Angeles, Primavera Press), and Dana Skinner's *Eugene O'Neill* (Dial). The popular Harold Bell Wright's *To My Sons* (Harper) tells an inspiring story of his earlier years. Of special interest is Van Wyck Brook's edition of the *Letters of Gamaliel Bradford* (Houghton, Mifflin), rich in intellect, the letters often being illuminating essays. A very analytical study of *The Elder Henry James* (Macmillan), is by Austin Warren. New light on the whole James family is found in Anna Robeson Burr's *Alice James: Her Brothers, Her Journal* (Dodd, Mead). A real contribution to the literary history of his period is *James Lane Allen and the Genteel Tradition,* by Grant C. Knight (Univ. of N. C.). Maud Elliott Howe's *My Cousin, F. Marion Crawford* (Macmillan) gives new light, and is pleasant reading. Henry Seidel Canby's *The Age of Confidence* (Farrar & Rinehart), is a volume reminiscent of his boyhood days in the Nineties, in Wilmington, Del. Of course, his writing is always agreeable, and here there is much that is thought-provoking, enabling one to see some reasons why we are what we are. An understanding biography by John Tasker Howard is *Stephen Foster, America's Troubadour* (Crowell), presenting a pathetic figure still living in such songs as ''My Old Kentucky Home.''

A GROUP OF FEMININE FIGURES

The year has a number of especially interesting and valuable books by women. These are largely reminiscent and only some of the important ones are here included. Margaret Charles is a sister of Marion Crawford, niece of the Howes, and her *Patterns of Life* (Little, Brown) tells of these and other notables. Quite outstanding in the entire field for the year is Edith Wharton's *A Backward Glance* (Appleton). In her usual excellent style she makes vivid New York of her girlhood days, her later life here and abroad, her friendships with other notables, that with Henry James being especially enlightening. Jessie B. Rittenhouse's *My House of Life* (Houghton, Mifflin) is interesting for its picture of her early life in the Middle West (one of the most appealing pictures known), and for her literary progress and contacts in later life. Quite different is the *Windows on Henry Street* (Little, Brown) by Lillian D. Wald. This is Miss Wald's outlook, based on her rich service at the Henry Street settlement. Some years ago an influential book was *An American Idyll,* by Cornelia Stratton Parker. Now her active life is chronicled in her *Wanderer's Circle* (Houghton, Mifflin). Some of the other books in this group are Eva LeGallienne's *At 33* (Longman); Clara E. Laughlin's *Traveling Through Life* (Houghton, Mifflin), Marie Dressler's *My Own Story* (Little, Brown), and one of less note, but of interest especially to the West Coast, is Dr. Helen MacKnight Doyle's *A Child Went Forth* (Gotham House).

MISCELLANEOUS

Nathan G. Goodman's *Benjamin Rush, Physician and Citizen, 1745-1813* (Univ. of Penn. Press) presents in a well done background the life of one who lived in lively times—America's first psychiatrist, Signer and generally active man. Thomas A. Edison is the subject of two new biographies. The one by Walter A. Simonds (Bobbs-Merrill) gives more light on the inventor's ancestry and background than we have had before. The book is not over-critical. Mary C. Nerney's work (Smith and Haas) is largely a form of anecdotes. A most readable book is Edwin Brant Frost's *An Astronomer's Life* (Houghton, Mifflin), for its picture of the subject's early days at Darthmouth, and his later professional life, largely at Yerkes Observatory. One of the most influential books written in America in this century is Thorstein Veblen's *Theory of the Leisure Class.* The author, who died five years ago, is now the subject of his first biography, entitled *Thorstein Veblen and his America* (Viking Press) by

Joseph Dorfman. While not a definitive work, it adds to our appreciation of the man. Morris Hillquist's *Leaves from a Busy Life* (Macmillan) is a good picture of 40 years of struggle of this socialist leader. Sherwood Eddy's *A Pilgrimage of Ideas* (Farrar and Rinehart) is divided into two parts, the first the narrative of the author's much travelled life and varied activities, the second his comments on events and ideas. Another life full of interesting contacts and thoughtful living is that of William, Cardinal O'Connell, found in his *Recollections of Seventy Years*, (Houghton, Mifflin). John W. Burgess' *Reminiscences of an American Scholar* (Columbia Univ. Press) pictures the South before and during the Civil War, Amherst College, German university life and later days at Columbia. We should include in this varied group, John Hays Hammond's *Autobiography* (Farrar and Rinehart), William G. Land's *Thomas Hill: Twentieth President of Harvard* (Harvard Univ. Press), Agnes Repplier's *Agnes Irwin* [first Dean of Radcliffe] (Doubleday), James Barne's *From Then Till Now* (Appleton—Century), the latter being especially interesting for its literary contacts of the 'nineties in New York.

FOREIGN SUBJECTS

The list of biographies of non-Americans written by Americans in this year is especially long and includes some high-rating works. One of the most readable, and otherwise valuable, is Willard Connely's *Sir Richard Steele* (Scribner), a vivid picture of a vivid man and period. Another is Mario M. Rossi's and J. M. Hone's *Swift* (Dutton). A book by Irvin Anthony is *Raleigh and his World* (Scribner), a defense, enthusiastically written. Daniel Sargent's *Thomas More* (N. Y., Sneed and Ward) presents a clearly drawn portrait. Louis T. More's *Isaac Newton* (Scribner) is a scholarly, critical work; while nothing very new is given, an authoritative and welcome biography is the result. A fascinating book on a fascinating subject is Meade Minnigerode's *Son of Marie Antoinette* (Farrar and Rinehart). The mystery of the Dauphin is well surveyed. *Beyond Damascus* (Harper) by F. A. Spence, is a carefully done life of Paul, presenting the first century background in considerable detail. An unusual character was James Silk Buckingham, 1786-1855, whose life, especially as social reformer, by Ralph E. Turner (Whittlesey House), illuminates the early Victorian period.

TRAVEL

By Elizabeth T. Platt

American Geographical Society

ASIA

The literature of travel has been enriched during the year by more than the usual number of noteworthy books. Material dealing with Asia has been of particular merit. Quite apart from the usual run of travel books is *Tents in Mongolia* by Henning Haslund (Dutton). It is a simply and effectively written account of an attempt of a group of young Danes to establish a colony in a corner of Outer Mongolia between Uriankhai and Siberia. Their undertaking included an agricultural project, trading with the Mongols, hunting and trapping, and prospecting for minerals. The difficulties were many and adventures exciting; the project was finally abandoned. Another exceptional work is Freya Stark's *The Valleys of the Assassins* (Dutton). It is a charming and absorbing tale of four Persian journeys—two into Luristan and two into the mountains south of the Caspian. The regions were comparatively unknown and the author, by dint of her energy, diplomacy, and surveying instruments, has added not a little to our store of knowledge of the region. A fresh and delightful story—an account of a wedding journey in Central Asia by a bride who traveled alone from Semipalatinsk to the borders of Turkestan—is Eleanor Lattimore's *Turkestan Reunion* (Day). Ben James, *The Secret Kingdom* (Reynal and Hitchcock) is a lively account of a journey through Afghanistan. The indefatigable Sven Hedin has written of his work in Tibet dating from 1896, *A Conquest of Tibet* (Dutton). H. V. Morton states that he has "attempted to express the thoughts and experiences which come the way of a man as he travels through Palestine with the New Testament in his hands," *In the Steps of the Master* (Dodd, Mead). Janet Miller, author of *Jungles Preferred,* writes enthusiastically of "an adventurous journey to the city of the Arabian Nights, the Tower of Babel, the Garden of Eden, the Palace of Darius, the Bazaars of Teheran, and the mountains and deserts of Persia," *Camel-Bells of Baghdad* (Houghton, Mifflin). Peter Fleming, of *Brazilian Adventure* renown, now writes in his usual lively manner of a journey to China, *One's Company* (Scribners).

SOUTH AMERICA

Comparatively few travel narratives have been written about the Guianas but this year two have appeared. *Rebel Destiny,* by Melville and Frances Herskovits is based on two field trips. It is scenes from the life of the Saramacca tribe of the Bush Negroes of Dutch Guiana, descendants of negro slaves who rebelled against their Dutch masters many years ago. It has been the purpose of these authors, already known for their work on Negro cultures, to stress the Negro's attitudes toward his own civilization and his own logic in explaining his customs. Evelyn Waugh journeyed on foot, horseback and by boat the full length of British Guiana to Boa Vista on the Rio Branco in Brazil. His story is mainly concerned with a characterization of the persons encountered, *Ninety-Two Days* (Farrar and Rinehart). An unusually entertaining account of a scientific expedition to Patagonia, the scientific results of which are being published elsewhere, is Dr. G. G. Simpson's *Attending Marvels* (Macmillan). His object has been to give "a true account without statistics and yet without yielding to the temptation to paint this anomalous and remote region in colors even more lurid than the original . . . It is an account of a scientific expedition but it is more concerned with people and events and places than with science."

THE ARCTIC AND ANTARCTIC

The schooner *Morrissey* of which Capt. Bob Bartlett has been the proud possessor since 1924 is the heroine of his latest book *Sails over Ice.* (Scribners). In his inimitable way he tells of nine trips made in her which have led him into remote regions of the Arctic. Of much the same philosophy as Merrick's *True North* (1933), is Dr. G. M. Sutton's *Eskimo Year* (Macmillan). The author spent a year on Southampton Island which lies almost across the mouth of Hudson Bay, studying the bird life of the island. The scientific results have been published elsewhere and the present volume is in the main an appreciation and evaluation of the Eskimo and his mode of living. Since 1906 P. H. Godsell has been with the Hudson Bay Company. His work has taken him over much of northern Canada, the lower Mackenzie River district and the islands in the Arctic off Canada, *Arctic Trader* (Putnam). Material dealing with the Antarctic has not been abundant this year. Russell Owen, correspondent for the first Byrd expedition, has given a vivid picture of the emotion, drives, and reactions of a group of men living alone in the remote region of Little America, *South of the Sun* (Day).

IN THE SEA AND IN THE AIR

Travel this year has not limited itself to the recording of adventures on the surface of the earth. William Beebe descended more than half a mile into the Atlantic and emerged with vivid tales of the life which he encountered. *Half Mile Down* (Harcourt, Brace) is a record of bathysphere experiences in the waters off Bermuda. His account with additional plates in color was issued in the *National Geographic Magazine*. In contrast to Dr. Beebe's record descent is the story of the flight over Everest in 1933. The many illustrations are photographs taken from the air, *First over Everest: the Houston Mount Everest Expedition, 1933*, by Air Commodore P. F. M. Fellowes and others (McBride).

PHILOSOPHICAL AND SOCIAL

There is a group of books interesting not because they deal with the penetration of any remote or unknown region but because their authors' personalities, philosophies and reactions are deeply injected into the narratives. Among these are J. B. Priestley, *English Journey* (Harper); Louis Adamic, *The Native's Return* (Harper); H. M. Tomlinson, *South to Cadiz* (Harper); Brooks Atkinson, *Cingalese Prince* (Doubleday); Aldous Huxley, *Beyond the Mexique Bay* (Harper); Lewis Gannett, *Sweet Land* (Doubleday).

HISTORY OF TRAVEL AND EXPLORATION

To the exploits of the present must be added several volumes recording work of the past. Jeannette Mirsky has attempted a comprehensive history of Arctic exploration from the days of the Greeks and Vikings to the present. A large part of the record is given in the words of the explorers themselves *To the North* (Viking). Limited particularly to the history of the quest for a passage through northern waters from the Atlantic to the Pacific is *The Search for a Northwest Passage* by N. M. Crouse (Columbia Univ.). It deals especially with the nineteenth century from Ross and Buchan's attempt in 1819 to Amundsen's accomplishment in 1905. For many years difficult to obtain, Carvajal's account of the discovery of the Amazon has again been made available, *The Discovery of the Amazon According to the Account of Friar Gaspar de Carvajal* and other Documents as published with an Introduction by José Toribio Medina. Translated from the Spanish by B. T. Lee, Edited by H. C. Heaton (American Geographical Soc.). J. C. Beaglehole's *The Exploration of the Pacific* (Macmillan) is a fascinating history of European exploration of the Pacific from the time of Magellan through the three voyages of Capt. James Cook. J. L. Mitchell's *Earth Conquerors* (Simon and Schuster) is a well written account, showing the glamour and romance attendant upon exploration in the lives and achievements of Leif Ericsson, Marco Polo, Columbus, Cabeza de Vaca, Magellan, Bering, Richard Burtón, Mungo Park, and Nansen. Sir Percy Sykes' comprehensive study is *A History of Exploration from the Earliest Time to the Present Day* (Macmillan).

CRITICISM AND BELLES LETTRES

By Peter Monro Jack

Critic and Lecturer

THE JAMESES

This has been no *annus mirabilis* for critical writing and the best single book has been on its way for 18 years. This is the long overdue collection of Henry James's critical prefaces, published now by Scribner's, with an introduction by R. P. Blackmur, and called somewhat grandly *The Art of the Novel*. It is the art of James's novel but it is a book of the first importance to every novel reader who speculates on the method and value of what he reads. If anything, this is the year of the Jameses. *Alice James: Her Brothers—Her*

Journal, with an introduction by Anna Robeson Burr (Dodd, Mead) shows that Alice James was a character in her own right who has many shrewd comments to make on life as well as much interesting information about her brothers. It is an unholy delight to find Queen Victoria described as the "supreme grocer" of England, and the Kaiser (in 1890) as "this whipped syllabub of a young man." Lastly there is Prof. Austin Warren's account of *The Elder Henry James* (Macmillan), that paragon of a parent, and it is particularly interesting for Professor Warren's account of James's peculiar theology which brought him followers even in England.

INDIVIDUAL STUDIES

The Cambridge Edition of the *Complete Works of Geoffrey Chaucer,* edited by F. N. Robinson (Houghton, Mifflin), the definitive edition, is admirable in text, notes, and glossary —in all respects. It could not have a better companion than John Livingston Lowes's *Geoffrey Chaucer and the Development of his Genius* (Houghton, Mifflin). These are the Swarthmore College lectures, popular in tone, and they cover Chaucer's background, his reading, his art and his comedy. Professor Lowes writes with infectious delight out of his great enthusiasm for Chaucer. A strictly English book is *A Companion to Shakespeare Studies* (Macmillan), edited by Harley Granville Barker and G. B. Harrison, and contributed to mostly by the University of London group (Mackail, Pollard, Sisson, Isaacs, etc.) but it has many references to American scholarship, and it is mentioned here as the best scholarly pool of our knowledge and views of Shakespeare and his environment. Edith C. Batho in *The Later Wordsworth* (Macmillan) dispels the inaccurate but common notion that when Wordsworth was young he was a bad man and a good poet, and when old a good man and a bad poet. The fact is that Wordsworth was never an apostate. Many of the views of his old age he held when young; he did not abandon his daughter; and his later poems Miss Batho makes sound as well as possible, which to tell the truth, is not easy. An original idea and a very skilful job has come from Earle Vonard Weller in *Autobiography of John Keats* (Stanford Univ. Press), compiled from his letters and essays. An authoritative critical account is in *Keats' Craftsmanship—A Study in Poetic Development,* by M. R. Ridley of Oxford (Oxford Univ. Press). *Charles Dickens. His Life and Work* by Stephen Leacock (Doubleday, Doran) may be mentioned, a book little short of idolatry; and Leacock has also done *The Greatest Pages of Charles Dickens,* a biographical reader and chronological selection, with a commentary on his life and art. (Doubleday, Doran) The study of Jeffers—*Robinson Jeffers: The Man and his Work* by Lawrence Clark Powel (Los Angeles, Primavera Press) — is careful but rather dull. We should like to call attention to the Random House annotated bibliography of Jeffers which came out late last year, one of the very best books of its kind, and indispensable to confirmed readers of Jeffers.

An interesting study has been made by Albert Leiser in *The Indian in American Literature* (Oxford Univ. Press), a scholar's book of the part the Indian has played in American literature from John Smith's romantic account of Pocahontas to John Neihardt on the Plains Indian. This has its sociological as well as its literary interest. *Songs of the Tewa,* translated by Herbert Joseph Spinden and published under the auspices of the Exposition of Indian Tribal Arts, has 23 translated songs but is chiefly remarkable for the complete survey it makes of conclusions arrived at on Indian poetry, and for Mr. Spinden's thesis that Indian art is essentially social in character, and so higher than merely individual art. We may mention here Dr. Huntington Brown's excellent *Rabelais in English Literature* (Harvard Univ. Press) for its value in showing how Shakespeare and the Elizabethans, Sterne and the 18th century novelists, among many, were influenced by

Rabelais. A most entertaining book is Albert J. Nock's *A Journey into Rabelais's France* (Morrow) for all devotees of Rabelais by his best devotee.

AESTHETIC

Art as Experience by John Dewey (Minton, Balch) defines Professor Dewey's biological view of art as an organic function, not different from life, rather a heightened consciousness of life, constantly being arrived at as an effect of man's struggle with his environment. Art is its own reason for existing, needing no help from religion, morality or science. The philosophical meaning of a poem has nothing to do with the greatness of the poem, Santayana, Eliot, and almost the whole roll call of critics, from Aristotle down, notwithstanding. Ugliness is the thwarting of this natural aesthetic sense for purpose of gain, and in *Art and Civilisation* Professor Dewey makes a vigorous plea for beauty in environment. The criticism that will be made of *Art as Experience* is that it does not convincingly differentiate the art product from the experience, or good art from bad art, that it does not sufficiently consider the evaluation of experience or the place of "beliefs"—moral, economic, scientific and the rest—that often determine the operation of art, generally unconsciously, and too often determine the continued operation of art for succeeding generations. Max Eastman in *Art and the Life of Action* (Knopf) continues the discussion. Accepting Dewey's notion of art as a heightened consciousness of life, he holds art to be a mental substitute for the thing itself, that is, for action. Art exists for the contemplation of itself; it does not, or should not subsist on some social purpose, though it has continually done so. It is now time to proclaim the independence of art, "to realize," as he says in his brilliant way "in energetic idleness the stuff of life and call this a good deed." It may be said, however, that energetic idleness is potential action, and the direction of the action may very well be influenced, subconsciously, by the dynamic tendencies of the art-form. That is to say, there are social implications in every experience, and particularly so in so disturbing an experience as art. There are essays in literary criticism, and personal essays, in Eastman's brilliant book, the best he has written. Earlier in the year Mr. Eastman published *Artists in Uniform* in which he protested that the Soviet writers were regimented and made to accept and apply in their writings Soviet idealogy.

ON CONTEMPORARY LITERATURE

The reaction against the "obscurity" of contemporary poetry is clearly stated in John Sparrow's *Sense and Poetry* (Yale Univ. Press), a better book than Mr. Eastman's *The Literary Mind: Its Place in an Age of Science* because Sparrow shows that he can read the obscure work; Mr. Eastman showed that he could not. But one is not conviced that Sparrow's taste is good when he prefers Aldington to Eliot, and he is surely wrong in believing that Joyce, Eliot and Pound deliberately wish to be unintelligible. T. S. Eliot takes a long shot at his contemporaries in *After Strange Gods: A Primer of Modern Heresy* (Harcourt, Brace) in which a brief but serious and cogent study of D. H. Lawrence, James Joyce, Pound, Yeats and Babbitt, ends with the charge that their writing is crude and provincial (compared with the major intellectual centres of Europe) because they have lost the sense of tradition and orthodoxy of sensibility. In *ABC of Reading* (Yale Univ. Press) Ezra Pound tells the young poet what he should read as a background of culture: that is, he tells what he himself has read. It includes Greek, Latin, Provencal, Chinese, English. Louis Untermeyer and Carter Davidson have done an anthology on *Poetry. Its Appreciation and Enjoyment* (Harcourt, Brace) with a pertinent introduction on poetry as communion and communication.

PERSONAE

Henry Seidel Canby's *The Age of Confidence* (Farrar & Rinehart), an account of his childhood and upbringing in a Delaware town in the Nineties, is one of the most charming books of the year. The chapter on what the Nineties read is particularly happy. Gamaliel Bradford, whose correspondents ran to some 5,000 persons, has his *Letters 1918–1931* (Houghton, Mifflin) edited by Van Wyck Brooks; they are a pleasant companion to the *Journal.* Hamlin Garland continues his reminiscences in a fourth volume, *Afternoon Neighbours.* They begin in 1922 and chronicle Garland's visits to England and France, his lectures in America, and his settling in California. The second part of Jessie B. Rittenhouse's *My House of Life* (Houghton, Mifflin) is particularly interesting for the literary figures of an earlier generation who come into it, Miss Rittenhouse having met many as the first secretary of the Poetry Society of America. The memoirs of the English publisher, Grant Richards—*Author Hunting* (Coward-McCann) — tell of some interesting American contacts, in especial of his dealings with Dreiser, giving a different version from that of Dreiser. Malcolm Cowley's *Exile's Return; A Narrative of Ideas* (W. W. Norton) is something of a landmark, if it should not prove to be a signpost, for those of his age and environment. It is the story of the "lost" generation self-exiled to Europe from Greenwich Village, of its literary influences—Stein, Joyce, Proust, Eliot, Valery—and of its return to home and work and a new faith. That faith for Cowley and for an increasing number of writers lies in communism, in the class struggle on the side of the workers. An entertaining and valuable record, it will be interesting to see its continuation.

MISCELLANIES

Three magazines have published miscellanies from their pages. The *Saturday Review of Literature* calls its selection *Designed for Reading* (Macmillan). The editors have made the selection, and it covers the decade of the paper's existence. It is much the best reading, and useful for writers and critics. *The Smart Set Anthology* (Raynal and Hitchcock), edited by Burton Rascoe, with a history of the magazine, shows that its writers have not changed a jot, as *The American Spectator Year Book* (Stokes), edited by Nathan, Anderson, Boyd, O'Neill, Dreiser, and Cabell, will reveal. James Branch Cabell's *Ladies and Gentlemen* (McBride) adds to his waning reputation. Here, for want of a better, may be the place to record the publication of Gertrude Stein's *Portraits and Prayers* (Random House) which few profess to understand but is none the less pleasant reading.

ENGLISH LANGUAGE AND LITERATURE

BY ALBERT CROLL BAUGH

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GENERAL

The present survey of American research in the field covered, like its predecessors, is selective. Many studies concerned with details too technical for the layman are omitted although they are often of considerable importance to the philologist and the literary historian. A complete list of such contributions will be found in the author's bibliography in the supplement to the *Publications of the Modern Language Association (PMLA)*.[1] The reader should also consult Hardin Craig's "Recent Literature of the English Renaissance" (*SP*), L. I. Bredvold's "English Literature, 1660-1800: A Current Bibliography" (*PQ*), and the "Victorian Bibliography" (*MP*) compiled by the Victorian research group of the Modern Language Association, all of which include foreign as well as American work.

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[1] Periodicals are cited under the following abbreviations, the reference being always to the volume for the year covered by this review:—*PMLA, Publications of the Modern Language Association of America; MP, Modern Philology; MLN, Modern Language Notes; MLR, Modern Language Review; JEGP, Journal of English and Germanic Philology; SP, Studies in Philology; PQ, Philological Quarterly; ELH, A Review of English Literary History; RES, Review of English Studies; RR, Romanic Review.* Titles appearing as theses or in the publications of universities are followed where possible by the name of the university.

THE ENGLISH LANGUAGE

An event of much importance was the appearance in June of the second edition of *Webster's New International Dictionary,* an entirely new work with the etymologies revised by Harold H. Bender and an important introductory account of English pronunciation by John S. Kenyon. Bender offers separately a new etymological study of "English *strawberry*" (*Amer. Jour. Phil.*), associating the word with the time of hay harvest. S. N. Treviño has compiled an important bibliography of "Experimental Phonetics" (*Amer. Speech*) for the year, 1933, with some earlier and later entries, and Morris Swadesh discusses "The Phonemic Principle" (*Language*), so important in the recording of speech sounds. Robert J. Menner's "Farman Vindicatus" (*Anglia*) reaches important conclusions affecting our knowledge of the Mercian dialect in Old English. George R. Stewart in "The Meaning of *bacheler* in Middle English" (*PQ*), finds three senses of the word distinguished: a knight-bachelor, an unmarried man, a young man. E. B. Dike has published two articles on the obsolescence of English words, "Our Oldest Obsoletisms" (*Englische Studien*) and "Our Obsolete Vocabulary: Some Historical Views" (*PQ*). Stewart Robertson has published a book on *The Development of Modern English,* Janet R. Aiken writes on "English as the International Language" (*Amer. Speech*), and Michael West considers the steps necessary to bring about "English as a World Language" (*ibid.*). In addition to a number of studies of American dialects, the same journal contains articles on "The English Dialect of Hawaii" and "Surinam Negro-English."

GENERAL LITERATURE

A number of books discussing the nature of literature for the layman have appeared. They include H. R. Walley and J. H. Wilson, *The Anatomy of Literature;* Ernest G. Moll, *Poetry, The Problem of Appreciation;* R. R. Kirk and R. P. McCutcheon, *An Introduction to the Study of Poetry.* Leonard Brown considers "Poetry as Mimesis" (*Sewanee Rev.*) rather than philosophy or the many other things often present in it. Theodore Maynard has published a dissertation on *The Connection between the Ballade, Chaucer's Modification of It, Rime Royal, and the Spenserian Stanza* (Cath. Univ. of Amer.). Wm. A. Hammond has issued a revised edition of his *Bibliography of Aesthetics and of the Philosophy of the Fine Arts from 1900 to 1932,* while George N. Belknap offers *A Guide to Reading in Aesthetics and Theory of Poetry.* Joseph G. Fucilla has compiled a useful list of translations of "Spanish Poetry in English to the year, 1850" *(Hispania).* Warren H. Smith studies the treatment of *Architecture in English Literature* in a Yale dissertation. The character of John W. Spargo's *Virgil the Necomancer,* is suggested by its subtitle, *Studies in Virgilian Legends.* A useful "Bibliography of Private Presses" by Irvin Haas has been appearing in the *American Book Collector,* while Nathan Van Patten has published, *An Index to Bibliographies and Bibliographical Contributions Relating to the Work of American and British Authors, 1923-1932.*

OLD ENGLISH LITERATURE
(450-1150)

Two studies of the *Beowulf* are of special interest, Arthur E. DuBois' "The Unity of *Beowulf*" (*PMLA*) and John O. Beaty's "The Echo-Word in *Beowulf* with a Note on the *Finnsburg Fragment*" (*PMLA*), the latter of which calls attention to a hitherto unnoticed stylistic feature and applies it to a textual problem.

In "Old English *beot* and Old Icelandic *heitstrenging*" (*PMLA*) Stefán Einarssen studies the custom of vowing great deeds among the Teutonic and other peoples. Small texts in Old English have been culled from manuscripts by Herbert Meritt, "Old English Entries in a Manuscript st Bern" (*JEGP*), and Cyril B. Judge, "Anglo-Saxonica in Hereford Cathedral Library" (*Harvard Studies and Notes*). F. W. Grube's "Cereal Foods of the Anglo-Saxons" (*PQ*) is of collateral interest to students of Old English culture.

MIDDLE ENGLISH LITERATURE (1150-1500)

Fourteenth Century.—An unusual number of significant contributtions to the study of Middle English literature marks the current year. Among more general topics treated may be mentioned George R. Coffman, "Old Age from Horace to Chaucer: Some Literary Affinities and Adventures of an Idea" (*Speculum*), Sister Mary Donatus, *Beasts and Birds in the Lives of the Early Irish Saints* (Pa. diss.), Harry Caplan, *Mediaeval Ars Praedicandi* (Cornell), and H. G. Pfander, "The Mediaeval Friars and Some Alphabetical Reference-Books for Sermons" (*Medium Aevum*). R. S. Loomis offers some "Notes on Layamon" (*RES*). The date of so remarkable a work as *The Owl and the Nightingale* naturally continues to excite speculation. Lillian de la Torre Bueno, "A Note on the Date of *The Owl and the Nightingale*" (*Anglia*) argues for a date after 1189, and Frederick Tupper, "The Date and Historical Background of *The Owl and the Nightingale*" (*PMLA*) offers an important bit of evidence pointing to the year, 1195. George Brandon Saul has made a welcome translation of *The Wedding of Sir Gawain and Dame Ragnell.* Another Gawain poem has been studied by R. E. Bennett in "The Sources of *The Jeaste of Syr Gawayne*" (*JEGP*). Arpad Steiner gives evidence for placing "The Date of Composition of *Mandeville's Travels*" (*Speculum*) between 1365 and the early part of 1371. Carleton Brown, "Sermons and Miracle Plays" (*MLN*), publishes a scrap of English verse suggesting the existence of religious plays by about 1350, a fact that is otherwise probable. Brother Cornelius Luke has published a dissertation on *The Rôle of the Virgin Mary in the Coventry, York, Chester and Towneley Cycles* (Cath. Univ. of Amer.).

Chaucer.—Among the more significant contributions to Chaucer scholarship during the year may be mentioned John L. Lowes' *Geoffrey Chaucer and the Development of his Genius.* Bertrand H. Bronson has published *Chaucer's House of Fame: Another Hypothesis* (Calif.). B. J. Whiting examines *Chaucer's Use of Proverbs* (Harvard). Benj. S. Harrison considers "Medieval Rhetoric in the *Book of the Duchesse*" (*PMLA*). The volume of *Three Chaucer Studies* noticed last year has called forth considerable comment, notably Frederick Tupper's "The Bearings of the Shipman's Prologue" (*JEGP*) and John M. Manly's "Three Recent Chaucer Studies" (*RES*). Manly has also shown that "Mary Chaucer's First Husband" (*Speculum*) was John Heyroun, a fact which had been questioned, and in "Chaucer's Mission to Lombardy" (*MLN*) has commented upon and corrected Braddy's paper in the same journal last year. Theodore Spencer discusses "The Story of Ugolino in Dante and Chaucer" (*Speculum*). Carleton Brown, in "The Squire and the Number of the Canterbury Pilgrims" (*MLN*), suggests that the description of the Squire was a later addition to the Prologue. The omission of this pilgrim would make the number "nine and twenty" correct (with three priests and without the poet).

Fifteenth Century. — Sanford B. Meech has published two studies of texts interesting for linguistic reasons: "Nicholas Bishop, An Exemplar of the Oxford Dialect of the Fifteenth Century" (*PMLA*) and "John Drury and His English Writings" (*Speculum*). Of general interest to students of the Middle Ages is the publication of the third and fourth volumes of Lynn Thorndike's *A History of Magic and Experimental Science,* dealing with the fourteenth and fifteenth centuries. The same author has published a valuable "Check-list of Rotographs in the History of Natural and Occult Science" (*Isis*).

MODERN ENGLISH LITERATURE (SINCE 1500)

Tudor and Elizabethan. — In "Skelton's *Speculum Principis*" (*Speculum*) F. M. Salter publishes the text of a supposedly lost work, now discovered in a ms. in the British Museum. John A. Gee, in "Tindale and the 1533 English *Enchiridion* of Erasmus" (*PMLA*), has brought forward evidence for Tindale's authorship of the existing version. A useful "Survey of Recent Books on the Renaissance in England" (*MP*) has been published by C. R. Baskervill. B. B. Gamzue's "Elizabeth and Literary Patronage" (*PMLA*) reaches the conclusion that Elizabeth's reputation as a patron of letters was rather cheaply won. Cyril B. Judge has carried through an interesting investigation of the practices of *Elizabethan Book Pirates* (Harvard). F. T. Bowers contributes "Notes on Gascoigne's *A Hundreth Sundrie Flowres* and *The Posies*" to *Harvard Studies and Notes,* while in the same volume Hyder E. Rollins discusses "John Grange's *The Golden Aphroditis,*" important in the development of prose fiction. Herbert Hartman has edited *Surrey's Fourth Boke of Virgill.* Sidney scholarship is represented by James M. Purcell's *Sidney's Stella,* James H. Hanford and Sara R. Watson's "Personal Allegory in the *Arcadia:* Philisides and Lelius" (*MP*), Constance M. Sypherd's "The Direct Source of the Pamela-Cecropia Episode in the *Arcadia*" (*PMLA*), and Lisle C. John's "The Date of the Marriage of Penelope Devereux" (*PMLA*), the last offering new evidence placing the marriage somewhat later in 1581 than is usually assumed.

Spenser.—Only a small part of the Spenser scholarship of the year can be mentioned. The third volume of the Variorum edition of Spenser's *Works* has appeared, containing Book III of the *Faerie Queene,* edited by F. M. Padelford. Padelford has also reproduced in facsimile *The Axiochus of Plato, translated by Edmund Spenser* with an introduction advocating the attribution of the work to Spenser. Harold Stein has published a volume of *Studies in Spenser's Complaints.* T. P. Harrison, Jr., compares "Spenser and Boccaccio's *Olympia*" (Texas). Isabel E. Rathborne offers "Another Interpretation of *Muiopotmos*" (*PMLA*). Brents Stirling's "The Philosophy in Spenser's 'Garden of Adonis'" (*PMLA*) is a criticism of previous interpretations, including Greenlaw's theory of Lucretian influence, and an explanation of the Garden as primarily the place where form and substance are united in accordance with current Elizabethan thought. Other interpretations of Spenser include Charles G. Smith's "Spenser's Theory of Friendship" (*PMLA*), Chas. W. Lemmi's "Britomart: The Embodiment of True Love" (*SP*), and Merlin L. Neff's "Spenser's Allegory of the Toll Bridge" (*PQ*).

Essex, Raleigh, etc.—In "Essex, the Ideal Courtier" (*ELH*) Ray Heffner seeks to relieve Essex of the one-sided characterization "the rash Earl," to show that in the opinion of contemporaries he had many of the qualities of the ideal courtier, and that Long's identification of Essex with Spenser's Sir Calidore is up to a certain point justified. Irvin Anthony's *Ralegh and His World* is a popular presentation of this picturesque figure. Don C. Allen has published a valuable critical edition of *Francis Meres's Treatise 'Poetrie'* (Illinois). Lewis F. Ball studies "The Background of the Minor English Renaissance Epics" (*ELH*). The late Wm. J. Hebel had published before his death *Poly-olbion, by Michael Drayton,* the fourth volume of Drayton's Works which he was editing.

Shakespeare.—Samuel A. Tannenbaum's "Annual Bibliography of Shakespeariana" again appears in the *Shakespeare Assoc. Bulletin.* Felix E. Schelling has published his recent lecture on "Shakespeare and Biography'' *(Univ. of Pa. Library Chronicle)*. In the field of text criticism the most important studies are Samuel A. Tannenbaum's ''A Critique of the Text of *Troilus and Cressida''* (*Shakespeare Assoc. Bull.*), Kenneth W. Cameron's ''The Text of *Othello:* An Analysis'' (*PMLA*), Gerda Okerlund's ''The Quarto Version of *Henry V* as a Stage Adaptation'' (*PMLA*), and Alwin Thaler's ''The 'Lost Scenes' of *Macbeth''* (*PMLA*). A number of source studies concern special features or episodes: Robert A. Law's ''Holinshed as Source for *Henry V* and *King Lear*,'' D. M. McKeithan's ''*King Lear* and Sidney's *Arcadia*,'' and Sarah Dodson's ''Holinshed's Gloucester as a Possible Source for Gaunt in Shakespeare's *Richard II*, (II, i),'' all in the *Univ. of Texas Studies in English.* Lucille King examines ''The Use of Hall's *Chronicles* in the Folio and Quarto Texts of *Henry VI''* (*PQ*). Louis B. Wright, in ''A Conduct Book for Malvolio'' (*SP*), gives an account of Walter Darell's *A Short Discourse of the Life of Servingmen* (1578). A number of articles have interest for the general reader: George C. Taylor's ''The Modernity of Shakespeare'' (*Sewanee Rev.*), P. V. Kreider's ''The Mechanics of Disguise in Shakespeare's Plays'' (*Shakespeare Assoc. Bull.*), and E. E. Stoll's two papers, ''Othello the Man'' (*ibid.*) and '''Reconciliation' in Tragedy: Shakespeare and Sophocles'' (*Univ. of Toronto Qu.*).

Other Elizabethan dramatists have had their usual share of attention. Don C. Allen has suggested ''A Source for *Cambises''* (*MLN*), and George L. Kittredge establishes 1561 as ''The Date of *The Pedlers Prophecie''* (*Harvard Studies and Notes*). Mark Eccles' *Christopher Marlowe in London* (Harvard) presents much new data, mostly from the Public Record Office, directly and indirectly connected with Marlowe, while T. M. Pearce offers an interpretation in *Christopher Marlowe—Figure of the Renaissance* (Univ. of New Mexico). George T. Buckley, in ''Who Was 'The Late Arrien'?'' (*MLN*), shows that the author of the document found in Kyd's possession was possibly one John Assheton. Thorleif Larsen has compiled ''A Bibliography of the Writings of George Peele'' (*MP*). Rudolph Kirk has edited *The City-Madam, by Philip Massinger* (Princeton), M. E. Borish has studied the question of collaboration in ''John Day's *Humour out of Breath''* (*Harvard Studies and Notes*), and Baldwin Maxwell gives evidence for 1621 as ''The Date of *The Pilgrim''* (*PQ*) by John Fletcher. Of more general character are H. K. Russell's ''Tudor and Stuart Dramatizations of the Doctrines of Natural and Moral Philosophy'' (*SP*) and Allan H. Gilbert's ''Seneca and the Criticism of Elizabethan Tragedy'' (*PQ*).

Milton.—Three more volumes of the Columbia University edition of *The Works of John Milton* have appeared, and J. Milton French has published ''A New Letter by John Milton'' (*PMLA*). Eleanor G. Brown has gone into the question of *Milton's Blindness* (Columbia) while George C. Taylor has devoted a volume to *Milton's Use of DuBartas.* D. M. Wolfe, in ''Milton, Lilburne, and the People'' (*MP*) seeks to clarify Milton's political position by a comparison with the beliefs of his contemparary, John Lilburne.

Donne and Others. — ''Donne's Platonism'' (*Sewanee Rev.*) is discussed by Frank A. Doggett, and George Williamson writes on ''The Libertine Donne'' (*PQ*). Austin Warren traces ''The Reputation of Crashaw in the Seventeenth and Eighteenth Centuries'' (*SP*). Robert L. Sharp seeks to throw ''Some Light on Metaphysical Obscurity and Roughness'' (*SP*). Sir Thomas Browne is discussed in ''Browne's *Hydriotaphia* with a Reference to Adipocere'' (*Isis*), by Wm. H. Barnes, while Thomas Cowles gives an account of ''Dr. Henry Power, Disciple of Sir Thomas Browne'' (*Isis*) and publishes ''Dr. Henry Power's Poem on the Microscope'' (*ibid.*). Robert A. Aubin offers ''Materials for a Study of the Influence of *Cooper's Hill''* (*ELH*) by Denham, and Cornell M. Dowlin has published his dissertation on *Sir William Davenant's Gondibert,* *Its Preface, and Hobbes's Answer: A Study in English Neo-classicism* (Pennsylvania).

Restoration Drama.—In the field of the drama Alfred Harbage gives an account of "An Unnoted Caroline Dramatist" (*SP*), Mildmay Fane, Earl of Westmoreland. James G. McManaway studies Massinger's popularity and influence in "Philip Massinger and the Restoration Drama" (*ELH*). Paul Mueschke and Jeannette Fleisher offer "A Re-evaluation of Vanbrugh" (*PMLA*). Willard Thorp has collected *Songs from the Restoration Theater* and Robert G. Noyes lists the "Contemporary Musical Settings of the Songs in Restoration Drama" (*ELH*). Louis B. Wright discusses "The Reading of Plays during the Puritan Revolution" (*Huntington Library Bull.*). T. F. M. Newton, in "The Mask of Heraclitus: A Problem in Restoration Journalism" (*Harvard Studies and Notes*), assigns the principal rôle in the publication of the journal *Heraclitus Ridens* to one Edward Rawlins, a dissipated Cambridge graduate.

Bunyan, Dryden, etc.—W. Y. Tindall has published *John Bunyan, Mechanick Preacher* (Columbia). H. G. Platt, Jr. offers interesting biographical matter in "Astrea and Celadon: An Untouched Portrait of Aphra Behn" (*PMLA*). An important study of Dryden has appeared in L. I. Bredvold's *The Intellectual Milieu of John Dryden; Studies in Some Aspects of Seventeenth-Century Thought* (Michigan). Shorter studies include Roswell G. Ham's "Dryden and the Colleges" (*MLN*) and Ernest Brennecke's "Dryden's Odes and Draghi's Music" (*PMLA*).

Eighteenth Century. — A number of important studies of the history of ideas in the eighteenth century indicate the emphasis that continues to be laid on this vital aspect of the period. Louis Whitney has devoted a volume to *Primitivism and the Idea of Progress in English Popular Literature of the Eighteenth Century.* Ronald S. Crane makes two significant contributions from his study of the theologians: "Anglican Apologetics and the Idea of Progress, 1699-1745" (*MP*) and "Suggestions toward a Genealogy of the 'Man of Feeling'" (*ELH*), the latter illustrating a source of the sentimental benevolence of the eighteenth century in the Latitudinarian divines of the late seventeenth and early years of the eighteenth century, an influence to be considered along with that of Shaftesbury. Roderick Marshall has published a dissertation on *Italy in English Literature, 1755-1815: Origins of the Romantic Interest in Italy* (Columbia), and Robert J. Allen writes of *The Clubs of Augustan London* (Harvard). Louis I. Bredvold discusses "The Tendency toward Platonism in Neo-classical Esthetics" (*ELH*). E. N. Hooker examines "The Discussion of Taste, from 1750 to 1770, and the New Trends in Literary Criticism" (*PMLA*) and in a second article surveys "The Reviewers and the New Criticism, 1754-1770" (*PQ*). Sister M. Justinian Warpeha treats *The Effect of the Reformation on the English Eighteenth Century Critics of Shakespeare (1765-1807)* (Cath. Univ. of Amer.). Clarence C. Green has traced *The Neo-classic Theory of Tragedy in England during the Eighteenth Century* (Harvard). H. F. Scott-Thomas discusses "Nahun Tate and the Seventeenth Century" (*ELH*) and offers evidence for July 30, 1715, as "The Date of Nahun Tate's Death" (*MLN*). Hazelton Spenser, in "Tate and *The White Devil*" (*ELH*) gives an account of Tate's adaptation, *Injur'd Love.*

Pope.—The most important contribution to recent Pope scholarship is George R. Sherburn's *The Early Career of Alexander Pope.* Special topics are treated in Samuel W. Stevenson's "'Romantic' Tendencies in Pope" (*ELH*) and Lawrence S. Wright's "Eighteenth - Century Replies to Pope's *Eloisa*" (*SP*).

Prose Fiction.—In "A Neglected Mid-Eighteenth-Century Plea for Originality and Its Author" (*PQ*), R. S. Crane offers convincing evidence for Goldsmith's authorship of an anonymous review in the *Critical Review* for January, 1760. Ernest Bernbaum continues his periodical survey of "Recent Works on Prose Fiction before 1800" (*MLN*). Charles E. Burch examines "Defoe's British Reputation 1869-1894" (*Englische Studien*). G. Louis Joughin has compiled "An Inchbald Bibliography" (*Univ. of Texas Stud. in English*) and Paul B. Anderson has written on "Delariviere Manley's Prose Fiction" (*PQ*).

Related Studies. — Herbert Drennon has published a number of related studies: "Newtonism: Its Method, Theology, and Metaphysics" (*Englische Studien*), "Scientific Rationalism and James Thomson's Poetic Art" (*SP*), "James Thomson's Contact with Newtonianism and His Interest in Natural Philosophy" (*PMLA*), and "The Source of James Thomson's 'The Works and Wonders of Almighty Power' " (*MP*), showing in the last named essay that the poem is a close rendering of Shaftesbury's *Moralists, A Philosophical Rhapsody* (1709). Richard C. Beatty discusses "Criticism in Fielding's Narratives and His Estimate of Critics" (*PMLA*). Bergen Evans formulates "Dr. Johnson's Theory of Biography" (*RES*).

Boswell and Young. — Two more volumes of *The Private Papers of James Boswell* bring this important series nearly to completion. Isabel S. Bliss has examined "Young's *Night Thoughts* in Relation to Contemporary Christian Apologetics" (*PMLA*).

Burns. — Short contributions to Burns scholarship are made by J. DeLancey Ferguson, in "The Earliest Obituary of Burns: Its Authorship and Influence" (*MP*), "Burns's Journal of His Border Tour" (*PMLA*), "Maria Riddell's Sketch of Burns" (*PQ*), and by D. F. Fraser-Harris, in "Burns as a Writer of Prose" (*Dalhousie Rev.*).

LITERATURE OF THE NINETEENTH CENTURY

The Poets.—The literature of the nineteenth century has been widely commented upon, though not more than its importance deserves. Charles H. Gray discusses "Wordsworth's First Visit to Tintern Abbey" (*PMLA*). Alan L. Strout in two papers considers "William Wordsworth and John Wilson: A Review of Their Relations between 1802 and 1817" (*PMLA*) and "John Wilson, 'Champion' of Wordsworth" (*MP*), the latter showing that Wilson's attitude and that of *Blackwood's* was not so uniformly favorable as is generally thought. Bennett Weaver considers "Wordsworth's *Prelude*: An Intimation of Certain Problems in Criticism" (*SP*), and John H. Smith traces the "Genesis of *The Borderers*" (*PMLA*). Earl V. Weller has compiled what he calls an *Autobiography of John Keats* from letters and other sources, while George L. Marsh and Newman I. White call attention to some early reviews in "Keats and the Periodicals of His Time" (*MP*). Paul Mueschke and Earl L. Griggs consider "Wordsworth as the Prototype of the Poet in Shelley's *Alastor*" (*PMLA*). Newman I. White also has discussed "Shelley's Biography: The Primary Sources" (*SP*). Margaret Sherwood has published a volume on *Undercurrents of Influence in English Romantic Poetry*. *Swinburne's Literary Career and Fame* is the title of a volume by Clyde K. Hyder. A. J. Armstrong has brought together a selection from the letters in the Baylor University Browning Collection under the title *Intimate Glimpses from Browning's Letter File.*

Essays. — George L. Nesbitt's *Benthamite Reviewing* is, as its subtitle indicates, a study of "the first twelve years of the Westminster Review, 1824-1836." The centenary of the death of Charles Lamb has called forth a number of appreciations, among which may be mentioned that of R. S. Knox in the *Univ. of Toronto Qu.* and John W. Dodds' "The Sanity of Charles Lamb" (*Sewanee Rev.*). A timely study is Nettie S. Tillett's "Elia and *The Indicator*" (*So. Atl. Qu.*), dealing with the relations between Lamb and Leigh Hunt. Marie H. Law has published her dissertation on *The English Familiar Essay in the Early Nineteenth Century: The Elements Old and New Which Went into Its Making as Exemplified in the Writings of Hunt, Hazlitt and Lamb* (Pennsylvania).

Carlyle and Newman.—J. W. Cunliffe has devoted a volume to the *Leaders of the Victorian Revolution.* Charles F. Harrold, in a Yale dissertation, studies *Carlyle and German Thought: 1819-1834.* Newman has been the subject of several treatments. G. H. Harper has edited the unprinted correspondence between *Cardinal Newman and William Froude, F. R. S.,* extending over 50 years; Sister Mary Aloysi Kiener offers a biographical study, *John Henry Newman: the Romantic, the Friend, the Leader;* and Wm. R. Lamm writes on the *Spiritual Legacy of Newman.*

Letters.—T. H. V. Motter has compiled "A Check List of Matthew Arnold's Letters" (*SP*). Clarence Gohdes and Paul F. Baum have edited the *Letters of William Michael Rossetti concerning Whitman, Blake, and Shelley, to Anne Gilchrist and Her Son Herbert Gilchrist.*

The Novel.—In the field of the novel Wilfield H. Rogers traces "The Reaction against Melodramatic Sentimentality in the English Novel, 1796-1830" (*PMLA*). Stephen Leacock has given us a book on *Charles Dickens, His Life and Work,* and has published an interesting comparison between "Two Humorists: Charles Dickens and Mark Twain" (*Yale Rev.*). Harold S. Gulliver, in *Thackeray's Literary Apprenticeship,* studies the early newspaper and magazine work of Thackeray. Stanley E. Baldwin offers a full length study of *Charles Kingsley* (Cornell), Carl J. Weber a shorter treatment of Hardy in "In Thomas Hardy's Workshop" (*Colby College Bull.*), and Amy B. Adams a monograph on *The Novels of William Hurrell Mallock* (Maine).

Contemporary.—More recent literature is considered in the dissertation of Walter D. Ferguson, *The Influence of Flaubert on George Moore* (Pennsylvania) and that of Theophilus E. M. Boll on *The Works of Edwin Pugh (1874-1930): A Chapter in the Novel of Humble London Life* (Pennsylvania). *Twentieth Century Forces in European Fiction* is the title of a volume by Agnes C. Hansen. Finally, the recent vogue of biography has been studied in an interesting volume by Mark Longaker, *Contemporary Biography,* containing critical essays on Lytton Strachey, Gamaliel Bradford, André Maurois, Emil Ludwig, Philip Guedalla, and Hilaire Belloc.

GERMANIC LANGUAGES AND LITERATURES

By F. W. Kaufmann

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GENERAL

The German revolution with its attempt to revalue the cultural expression of the nation throughout the centuries cannot fail to preoccupy the mind of the literary historian in this country. This preoccupation, however, has not yet invaded the publications of the year. Apart from isolated instances in some reviews, American scholars have kept aloof from the extremistic application of the "blood and race" theory which is infesting part of the publications in Germany, and it will be the task of the American scholar to maintain the standard of objectivity in the study of Germanic culture and literature which is temporarily losing ground in the country which contributed so greatly to the development of the scientific standard. This objectivity will be most difficult with regard to the interpretation of the present situation itself.

PHILOLOGY

Under the title "Certain Phonetic Tendencies in Old Norse" (*Language*), A. M. Sturtevant undertakes to give several sound laws in Old Norse a stricter application by tracing some phonetic tendencies from the Pre-Germanic or the Pre-Norse period through the Old Norse and examining the factors which either favored or checked such tendencies. The author continues his studies in Old Norse etymologies in several articles published in *Language* and *JEGP*.* G. T. Flom studies the "Vowel Harmony in Old Norse and Northern Aberdeenshire Scotch" (*JEGP*) and so finds traces of the influence of an early Norse-speaking population on the accent and the tonal quality of this part of the Scottish speech region. Rosen in a monograph *Old High German Prepositional Compounds in Relation to their Latin Originals* (Linguistic Society of America), bases an examination of the Old High German tendency towards part-by-part translation of foreign words on the Gospel Harmony of Tatian and finds that this language, as other Germanic languages, was capable of taking over in closely parallel form the Latin usages, but that it was not too subservient to the original. Goetsch in *The Phonology of the Low German Deeds in the Oldest Registry at Riga, Latvia* (Linguistic Society of America), examines the general supposition that the Middle Low German written language of the East-Baltic teritory belonged to the North-Saxon group, and he proves that in this important set of records the language is purely Low German and that there is a considerable uniformity in the spelling of the scribes and a great conformity to the North-Saxon norm of the Middle Low German. P. M. Palmer's *Der Einflusz der neuen Welt auf den deutschen Wortschatz 1492-1800* (Heidelberg) lists 151 words with context from German books on history and travel published before 1800, showing the influence of American Indian and European languages as spoken in the New World on the German vocabulary.

LITERATURE

Halldór Hermannsson in *Old Icelandic Literature* (Cornell), surveys the editions and translations made of works belonging to this period of literature. He describes the principal agents that have made this writing accessible to scholars and the reading public and the handicaps in the way of a complete and uniform publication of the entire material. The Icelanders published their Sagas of the Norwegian Kings; there are Swedish Saga publications, Danish photographical reproductions, and a systematic edition of translations in German. The author concludes with a plea to the Nordic scholars to unite under the auspices of a central institution which finally might coordinate the work so unhappily scattered over the world. Schlauch in *Romance in Iceland* (Princeton) gives a first comparative study of the *lugi-sögur,* only few of which had been considered in the histories of Icelandic literature, since all sagas produced after the Reformation were almost inaccessible, existing only in manuscripts and in popular prints which were not traded outside of the island. M. A. Rachbauer's publication on *Wolfram von Eschenbach* (Catholic Univ. of America) treats the relation of the content of Books III-VI and IX of the *Parzival* to the Crestien manuscripts. A. M. Weiss's *Merlin in German Literature* (Catholic Univ. of America) is a study of the Merlin Legend in German Literature from the Middle Ages to the beginning of the 19th Century. E. G. Gudde in a treatise *Social Conflicts in Medieval German Poetry* (Univ. of California) portrays the conflicts between nobility and bourgeoisie, clerics and laymen, burghers and peasants, gentiles and Jews, patricians and artisans as reflected in the poetry from the middle of the twelfth to the end of the fifteenth centry. R. H. Fife in "The Renaissance in a Changing World" (*GR*) presents a survey of the approaches to the Renaissance and advocates an investigation of literary style as an interpretation of race and period. W. P. Friederich characterizes the poetry of "Julius Wilhelm Zinkgref and his Fellow-Poets" (*GR*) as torn between the two extremes of sensualism and spiritualism. M. B. and L. M. Price edited a very com-

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*Abbreviations: *GR=Germanic Review; JEGP=Journal of English and Germanic Philology; PMLA = Publication of the Modern Language Association of America.*

prehensive bibliography of the *Publication of English Literature in Germany in the Eighteenth Century* (Univ. of California). P. G. Graham devotes the first chapter of *The Relation of History to Drama in the Works of Friedrich Hebbel* (Smith College Studies in Modern Languages) to an outline of Hebbel's theories with respect to the use of history in drama, as expressed in his critical essays, diaries and letters. Succeeding chapters present an examination of all of Hebbel's major dramas and dramatic fragments in an attempt to determine on the basis of actual practice what use he made of history.

According to F. B. Wahr's article on "Hauptmann's Hellenism" (*JEGP*) the contact with the Hellenistic world afforded Gerhart Hauptmann a deeper and more serene interpretation of nature and human life. In an article on "Woman's Mission in Hauptmann's Dramas" (*GR*), L. B. Keefer shows how woman is the center of Hauptmann's dramas, determining problem, direction, and solution of the play. W. Neuse in "'Erlebte Rede' und 'Innerer Monolog' in den Erzählenden Schriften Arthur Schnitzlers" (*PMLA*) analyzes the use of some typical speech forms in Schnitzler's prose and their relation to the impressionistic style and conception of life. Von Bradish publishes the "Correspondence between Hugo von Hofmannsthal and Anton Wildgans" (*PMLA*) as far as they are of more than momentary interest. M. J. Fruchter's *Georg Kaiser's Dramatic Works. His Social Dialectic* (Philadelphia) presents in the first part of this study the principles of Kaiser's dialectic struggle against a mechanized form of society and morality and his solution in the idea of the New Man. In the second part he analyzes the 42 plays in the light of this dialectic theory which he finds most clearly expressed in the works of the middle period. How Expressionism developed from its formless ecstasy through pseudo-ecstasies to a simpler and humbler submission to a greater Whole and to a new sense of responsibility is the theme of a study by D. W. Schumann on "Expressionism in German Lyrics" (*GR*). This study is supplemented by E. P. Appelt's article on "Weltanschauungsgedanken der modernen Arbeiterlyrik" (*GR*).

ROMANCE LANGUAGES AND LITERATURE

By George Irving Dale

Professor, Cornell University

BIBLIOGRAPHIES

The following books and articles on French, Italian and Spanish topics appeared in 1934: "L'Année Littéraire Mil Neuf Cent Trente-Trois" (*MLJ*)[*] by A. Schinz; "A Bibliography of Eighteenth-Century English Editions of J.-J. Rousseau, with Notes on the Early Diffusion of his Writings" (*PQ*) by J. H. Warner; "A Tentative Bibliography of Spanish Translations of the Works of J. J. Rousseau" (*HR*) by J. R. Spell; "Italian Renaissance Studies in 1933" (*SP*) by W. L. Bullock; A *Bibliography of Italian Studies in America*, by J. E. Shaw; "Leopardiana" (*PQ*) by J. G. Fucilla; "Italian Vervantiana’’ (*HR*) by J. G. Fucilla; ‘‘Adiciones a la Bibliografía de García Gutiérrez’’ (*HR*) by E. A. Gómez and P. P. Rogers; ‘‘Philological Articles in *Nosotros:* A Bibliography’’ (*PQ*) by M. W. Nichols and L. B. Kinnaird; *A Tentative Bibliography of Columbian Literature* (Harv) by S. E. Leavitt and G. García-Prada; *A Tentative Bibliography of the Belles-Lettres of Ecuador* (Harv) by G. Rivera; *Bibliografía de la Poesía Mexicana* (Harv) by A. Torres-Rioseco and R. E. Warner.

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[*] Abbreviations: B.M., Bryn Mawr; Cal., University of California Press; Chi., Chicago University; C.U., Columbia University Press; *FR, French Review;* Harv., Harvard University Press; *HS, Harvard Studies and Notes in Philology and Literature; Hisp., Hispania; HR, Hispanic Review;* I. Esp., Institute de las Españas; IFS, Institute of French Studies; *Ital., Italica; JHS, Johns Hopkins Studies in Romance Literatures and Languages; L, Language; Mich., University of Michigan Publications in Language and Literature; MLJ, Modern Language Journal; MLN, Modern Language Notes; MP, Modern Philology;* N.M., University of New Mexico; Penn., University of Pennsylvania: *PMLA, Publications of the Modern Language Association of America; PQ, Philological Quarterly;* Prin., Princeton University Press; *RR, Romanic Review; SR, Spanish Review; S, Speculum; SP, Studies in Philology;* Yale, Yale University Press.

LINGUISTICS

Of general interest is the article by G. L. Trager ‘‘On the Classification of the Romanic Languages’’ (*RR*). Short studies in the field of French include ‘‘Old French ‘Dangier,’ a New Interpretation of its Semantic Origin’’ (*FR*) by G. M. Braun; ‘‘Paire d’Armes’’ (*MLN*) by E. B. Ham ‘‘Anglo-Norman *suite* ‘work (?)’’’ *(MLN)* by E. Shanks; ‘‘The Beginnings of French Uvular *R*’’ (*MLN*) by H. C. Lancaster; and ‘‘ ‘Humanisme,’ ‘Humanitisme’ and ‘Humanitarisme’ ’’ (*MLN*) by E. D. Seeber. A ‘‘Basic French Vocabularly’’ (*MLJ*) is offered by A. G. Bovée and others. F. J. Cummings studied *Caesar’s Vocabulary as Reflected in French* (Penn). N. S. Bement analyzed ‘‘French Modal Syntax in the Sixteenth Century’’ (*Mich*) and U. T. Holmes and A. H. Schutz have written *A History of the French Language* (Hedrick). Various phrases of Spanish linguistics are represented by the following articles: ‘‘Moscatel’’ (*Hisp*) by C. E. Anibal; ‘‘The Etymology of Spanish *columbrar* ‘to descry,’ *vislumbrar* ‘to see dimly’ ’’ (*HR*) by C. C. Rice: ‘‘Tot siempre’’ (*HR*) by M. A. Zeitlin; ‘‘ ‘Quillotro’ y sus Variantes’’ (*HR*) by M. Romera-Navarro; ‘‘Hispanic Etymologies’’ (*L*) by C. C. Rice; ‘‘Final *S* plus *N*-glide in Mexico’’ (*MLN*) by L. O. Wright; ‘‘Dissimilation of Vowels in Spanish’’ (*RR*) by W. E. Knickerbocker; ‘‘*Cosa nada* en el Español-nuevomejicano’’ (*MLN*) by J. B. Real; ‘‘Semitonic Demonstrative Pronouns’’ (*Hisp*) By R. E. Schulz; ‘‘The Relative Combined with *Querer* in Old Spanish’’ (*HR*) by R. Palomo; ‘‘A Note on the *-ra* Indicative in Fifteenth Century Spain’’ (*PQ*) by R. Davis; *Preliminary Glossary of New Mexican Spanish* (N.M.) by F. M. Kercherville. E. B. Williams discussed ‘‘The Posttonic Penult in Portuguese’’ (*HR*) and ‘‘Radical Changing Verbs in Portuguese’’ (*L*).

FRENCH

Medieval.—W. B. Cornelia wrote ‘‘On the Significance of the Symbol AOI in the *Chanson de Roland*’’ (*RR*). Of interest to students of Arthurian material is ‘‘Ulrich von Zatzikhoven’s ‘Welsches Bouch’ ’’ (*HS*) by K. G. T. Webster. The same problem is discussed twice in ‘‘The Date of *Ciperis de Vignevaux*’’ (*MLN*) by A. H. Krappe and in ‘‘The Date of Composition of *Ciperis de Vignevaux*’’ (*MLN*) by A. Steiner. Other articles were: ‘‘An Anglo-French Life of Saint Agnes’’ (*HS*) by A. J. Denomy; ‘‘Rondeaux d’Amour du XV^{e} Siècle’’ (*HS*) by M. Françon; ‘‘Jean Renart and the Authorship of *Galeran de Bretagne*’’ (*MLN*) by V. F. Koenig; ‘‘An Unpublished Fragment of Gui de Cambria’s *Vengement Alixandre,*’’ (*MLN*) by B. Edwards; ‘‘Joinville et le Conseil Tenu à Acre en 1250’’ (*MLN*) by A. Foulet; ‘‘Les Poésies de Marguerite d’Autriche’’ (*RR*) by M. Françon and Gh. de Boom.

Sixteenth Century.—This period is represented by seven articles, two of which are by A. D. Menut: ‘‘A Renaissance Translation of the *Nicomachean Ethics* Reveals a Forgotten Sonnet by Thomas Sebillet’’ (*RR*) and ‘‘Montaigne and the *Nicomachean Ethics*’’ (*MP*). ‘‘An Unpublished Letter of Du Barthas’’ (*MLN*) was presented by S. F. Will. Other articles were: ‘‘The French Académie and Wits Commonwealth’’ (*PQ*) by D. T. Starnes; ‘‘Spenser, Ronsard and Bion’’ (*MLN*) by T. P. Harrison, Jr.; ‘‘Pierre Le Loyer’s Version of the *Ars Amatoria*’’ (*RR*) by W. L. Wiley; ‘‘Literary Evidence of the Prestige of the Black Arts in French

“Literature of the Renaissance” (*SP*) by J. C. Lyons.

Seventeenth Century.—J. L. Gerig and G. L. van Roosebroeck continued the printing of the “Unpublished Letters of Pierre Bayle” (*RR*). Two short articles were: “The Shifting of Responsibility in Eighteenth Century French Tragic Drama” (*MLN*) by M. Baudin and “Goldsmith's Translation of the *Roman Comique*” (*MLN*) by H. Stein. C. O. Parsons contributed an interesting article on “The Nose of Cyrano de Bergerac” (*RR*).

Eighteenth Century.—Voltaire was represented by the following three articles: “Thompson and Voltaire's *Socrate*” (*PMLA*) by R. M. Davis; “Two Unpublished Letters of Voltaire” (*MLN*) by F. J. Crowley; “Voltaire and Blin de Sainmore: an Unpublished Voltaire Letter” (*MLN*) by W. C. Holbrook. Further contributions were: “Berquin's Adaptations from English Periodical Literature” (*PQ*) by J.-M. Carrière; “English Drama Transferred to Prévost's Fiction” (*MLN*) by P. B. Anderson; “Une Résumée de Quelques Années de la Vie de Buffon. Lettre Inédite” (*MLN*) by M. Herring; “Parny as an Opponent of Slavery” (*MLN*) by E. D. Seeber; “An Error in Dating a Letter of Montesquieu” (*MLN*) by E. H. Price. J. R. Spell Discussed “Rousseau's 1750 ‘Discours’ in Spain” (*HR*). A detailed study by E. C. Frederick was “The Plot and its Construction in Eighteenth Century Criticism” (B.M.).

Nineteenth Century. — A careful study of one phase of Chateaubriand's work is “La Terre et les Morts dans l'Oeuvre de Chateaubriand” (*JHS*) by O. Longi. Other articles about him are: “Chateaubriand and Marcel Proust” (*MLN*) by J. A. Bédé and “A Contemporary Source for the Description of Heaven in *Les Martyrs*” (*RR*) by V. Clayton. G. N. Henning discussed “*Le Sacrifice* of Leconte de Lisle” (*MLN*) and E. Schons published “Leconte de Lisle's Poems on Peter the Cruel” (*MP*). Articles on Balzac were: “Balzac in England” (*MLN*) by T. R. Palfrey and “Balzac's First Thought of ‘César Birotteau’” (*MLN*) by G. M. Fess. W. S. Hastings edited *Balzac—Letters to his Family, 1809–1850* (Prin). Other articles contributed were: “Alfred de Vigny's ‘Journal of a Poet’” (*MLJ*) by C. W. Bird; “*Camille* as the Translation of *La Dame aux Camélias*” (*MLN*) by A. E. Zuker and P. de F. Henderson; “A Letter from Lamartine to ‘Gr. K.’” (*MLN*) by S. Merton; “Eugène Manuel, Uhland and Sir William Jones” (*MLN*) by A. Schaffer; “Stendhal en Espagne” (*MP*) by R. Vigneron; “Scott and the French Romantics” (*PMLA*) by E. P. Dargan; “Gustave Flaubert and Charles Baudelaire — Their Correspondence” (*PMLA*) by L. G. Miller; “J. K. Huysmans and George Moore” (*RR*) by S. M. Steward. A. Feuillerat brought out his work entitled *Comment Marcel Proust a Composé son Roman* (Yale). R. E. Turner published *The Sixteenth Century in Victor Hugo's Inspiration* (I.F.S.). E. M. Grant published a collection entitled *Chief French Plays of the Nineteenth Century* (Harper).

Contemporary Literature.—Scholarly interest in the literature of the twentieth century is revealed by the following articles: “L'Art Poétique de Paul Claudel” (*FR*) by Sister St. Ursula; “Pierre Mac Orlan et le Romantisme Moderne” (*FR*) by R. Cros; “Jean Giono, the Abuse of Comparisons with ‘comme’ in ‘Solitude de la Pitié’ and ‘Jean le Bleu’” (*FR*) by H. Harvitt; “United States in the Post-war Literature of France” (*MLJ*) by A. Kalfayan; “Populism” (*PMLA*) by F. Walter; “Marcel Schwob and the Art of Biography” (*RR*) by S. A. Rhodes; “The Problem of Lautréamont” (*RR*) by H. A. Grubbs, Jr. B. M. Woodbridge discussed “Jean Tousseul: A Walloon Novelist” (*RR*).

ITALIAN

Dante.—Contributions to the study of Dante were: “Similarities of Thought in Dante and Ovid” (*PQ*) by O. M. Johnston; “The Story of Ugolino in Dante and Chaucer” (*S*) by T. Spencer; “Dante Notes” (*MLN*) by H. D. Austin; “Amount of Knowledge Attributed to the Spirits in Dante's *Inferno*’’ (*RR*) by O. M. Johnston.

Other Italian Studies.—*Echoes of the American Revolution in an Italian Poet,* by J. G. Fucilla; ‘‘Sforza Oddi and his Comedies’’ (*PMLA*) by M. H. Corrigan; ‘‘Petrarch's *Optimus Princeps*’’ (RR) by A. Steiner; ‘‘References to Spanish Literature in Equicola's *Natura de Amore*’’ *(MP)* by C. P. Merlino. J. B. Fletcher published his *Literature of the Italian Renaissance* (Macmillan).

SPANISH

Medieval. — In his article ‘‘ ‘La Gran Conquista de Ultramar’ and its Problems’’ *(HR)* G. T. Northup reported progress and outlined the many problems involved. E. Macaya Lahmann studied ‘‘Las Asonancias del Poema del Cid’’ (*Hisp*) and F. Callcott has described ‘‘The Cid as History Records him’’ *(Hisp)*. Other articles were: ‘‘Several Observations Concerning *Lo Libre de Saviesa* Attributed to James I of Aragon’’ (*HR*) by L. Casten; ‘‘Observations on the *Crónica de Once Reyes*’’ (*HR*) by T. Babbitt; ‘‘Una Fuente de las Partidas: La *Disciplina Clericalis* de Pedro Alfonso’’ (*HR*) by A. G. Solalinde; ‘‘Note on Abolays’’ (*HR*) by J. H. Nunemaker. I. Pope contributed ‘‘Mediaeval Latin Background of the Thirteenth-Century Galician Lyric’’ (*S*). W. R. Long published *La Flor de las Ystorias de Oriente* (Chi).

Golden Age.—The drama and dramatists of this period were subjects of great interest as the following list will show: ‘‘Lope de Vega's *Gracioso* Ridicules the Sonnet’’ (*Hisp*) by L. K. Delano; ‘‘The Renegade in the Spanish Theater of the Seventeenth Century’’ (*Hisp*) by E. Crooks; ‘‘The Greatest Spanish Dramatists’’ (*Hisp*) by A. H. Bushee; ‘‘Does Lope de Vega's ‘Gracioso’ Stem in Part from Harlequin?’’ *(Hisp)* by E. B. Place; ‘‘Observations on *La Estrella de Sevilla*’’ (*HR*) by C. E. Anibal; ‘‘A Shipment of *Comedias* to the Indies’’ (*HR*) by I. A. Leonard; ‘‘Las Disfrazadas de Varón en la Comedia’’ (*HR*) by M. Romera-Navarro; ‘‘Windows on the Spanish Stage in the Sixteenth Century’’ (*HR*) by W. H. Shoemaker; ‘‘Augustín de Rojas and ‘La Vida es Sueño’ ’’ (*HR*) by G. I. Dale; ‘‘Lope de Vega and the Duque de Osuna’’ (*MLN*) by C. E. Anibal; ‘‘Lope de Vega's *Peregrino* Lists not *Termini a quo*’’ (*MLN*) by S. G. Morley; ‘‘Tirso's *Santa Juana, Primera Parte*’’ (*MLN*) by G. E. Wade; ‘‘The Historical Elements of Lope de Vega's *Fuente Ovejuna*’’ (*PMLA*) by C. E. Anibal. Other articles were: ‘‘A Precursor of the Picaresque Novel in Spain’’ *(Hisp)* by L. B. Simpson; ‘‘Castillejo's *Ana*’’ (*HR*) by J. P. W. Crawford; ‘‘Cervantes and the Renaissance’’ (*HR*) by A. F. G. Bell; ‘‘Autores Latinos en *El Criticón*’’ (*HR*) by M. Romera-Navarro; ‘‘Note on a Sonnet of Rioja's’’ (*HR*) by E. M. Wilson; ‘‘Una Biografía Desconocida de Juan de Mal Lara’’ (*HR*) by F. Sánchez y Escribano. Treating of an earlier period is ‘‘Encina's ‘Egloga de Fileno, Zambardo y Cardonio’ and Antonio Tebaldeo's Second Eclogue’’ (*HR*) by J. P. W. Crawford. The article by J. G. Fucilla ‘‘Spanish Poetry in English to the Year 1850’’ (*Hisp*) involves, obviously, the Post-golden Age.

The eighteenth century is represented by one article: ‘‘A study of the Influence of Oliver Goldsmith's *Citizen of the World* upon the *Cartas Marruecas* of José Cadalso’’ (*HR*) by K. Reading.

Modern. — The first half of the nineteenth century is represented by six articles: ‘‘Romantic Irony and Satire Especially in Spain’’ *(Hisp)* by J. T. Reid; ‘‘The Reception of *Don Alvaro*’’ (*HR*) by E. A. Peers; ‘‘The Genesis of *La Familia de Alvareda*’’ (*HR*) by E. H. Hespelt; ‘‘A Note on the Versification of Larra’’ (*PQ*) by K. H. Vanderford; ‘‘Two Unpublished Anecdotes by Fernán Caballero Preserved by Washington Irving’’ (*MLN*) by E. H. Hespelt and S. T. Williams; ‘‘Dramatic Copyright in Spain Before 1850’’ (*RR*) by P. P. Rogers. Novelists and their works have been discussed in the following: ‘‘Reactionism in Perada's ‘Tío Cayetano’ ’’

(*Hisp*) by J. O. Swain; "Galdós and Giner" (*SR*) by H. C. Berkowitz; "Source or Analogue of Blasco Ibáñez's 'El Golpe Doble'" (*SR*) by E. H. Hespelt; "Certain Considerations Inviting Reappraisal of 'La Fe' by Armando Palacio Valdés" (*Hisp*) by W. A. Beardsley. Articles on living writers were: "The Quixote of Contemporary Spain: Miguel de Unamuno" (*PMLA*) by J. A. Balseiro; "The Creationism of Vincente Huidobro" (*SR*) by H. A. Holmes. A very complete work devoted half to writers of Spain and half to writers of Spanish America was published by J. Englekirk: *Edgar Allen Poe in Hispanic Literature* (I. Esp.).

Spanish America.—Aside from J. Englekirk's work above mentioned, a book of general interest is *The Modernist Trend in Spanish-American Poetry* (Cal) by G. D. Craig. J. Englekirk has also discussed "'The Raven' in Spanish America" (*SR*). Poe figures again in an article by M. C. Johnston: "Rubén Darío's Acquaintance with Poe" (*Hisp*). Other articles were: "Scott's Influence on José Mármol's *El Cruzado*" (*Hisp*) by S. Cuthbertson and "*El Enriquillo* de Manuel de Jesús Galván" (*Hisp*) by C. Meléndez. From the Yale Press came *Carlos María Ocantos, Argentine Novelist, a Study of Indigenous French and Spanish Elements in his Work*, by T. Anderson. A. L. Campa contributed a study of the *Spanish Religious Folktheatre in the Southwest*, first and second cycles, (N.M.)

LATIN LITERATURE

By Frank Gardner Moore

Professor, Columbia University

THE LOEB CLASSICAL LIBRARY

Recent issues in this great collection, which has reached its 286th volume and is now the property of Harvard University, are: *Minor Latin Poets* (including Publilius, the *Laus Pisonis*, the *Aetna*, Calpurnius Siculus, Avianus, and others), translated by J. Wight Duff and Arnold M. Duff; *Valerius Flaccus*, by J. H. Mozley; *Cato and Varro De Re Rustica*, by W. D. Hooper, *Vitruvius* (vol. 2) by Frank Granger; *Silus Italicus* (2 vols.) by J. D. Duff.

THE LATIN WRITERS

E. K. Rand gives a rhetorical analysis of a book of Lucretius in "La Composition rhétorique du troisième Livre de Lucrèce" in *Revue de Philologie* (8, 60, 243 ff.), discusses the *Pervigilium Veneris* in *Revue des Études Latines* (12, 83 ff.), inclining to accept the attribution to Florus; and renews a controversy in "Once More Vergil's Birthplace" in *H. S. C. P.** (44, 63 ff.). H. C. Nutting continues his growing series of comments on the *Pharsalia* (in part text-critical) in "Notes on Lucan" in *A. J. P.* (55, 49 ff.); "Comments on Lucan" in *U. C. P.* (11, 291 ff., 305 ff.); "Notes on Lucan's *Pharsalia*" in *C. P.* (29, 317 ff.); "Remarks on Lucan's *Pharsalia*" in *C. W.* (27, 57 ff.). Eva M. Sanford brings together "Quotations from Lucan in Mediaeval Latin Authors" in *A. J. P.* (55, 1 ff.). F. H. Cowles discusses "Vergil's Hatred of War" in *C. J.* (29, 357 ff.). "Vergilianism" is the title of a paper by the Late D. O. S. Lowell (Annotated by C. Knapp) in *C. W.* (28, 41 ff.). W. J. Oates has "A Note on Cato, *De Agricultura* LVI" in *A. J. P.* (55, 67 ff.). J. N. Hough considers the "Use of Greek Words in Plautus," (*ib.* 346 f.). Mary C. FitzPatrick writes on *Lactantius* (?) *De Ave Phoenice*," a Penna. thesis,

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* Periodicals are abbreviated as follows: *A. J. P., American Journal of Philology; C. J., Classical Journal; C. P. Classical Philology; C. W., Classical Weekly; Spec., Speculum; T. A. P. A., Transactions of the American Philological Association; U. C. P., University of California Publications in Classical Philology.* Titles of books and monographs are italicized. Those of periodicals articles are put in quotation marks.

1933. N. Moseley and M. Hammond have edited the *Menaechmi* of Plautus, for college classes, especially Freshmen (Harvard Univ. Press, 1933). Blanche Botherton treats of "The Introduction of Characters by Name in the *Metamorphoses* of Apuleius" in *C. P.* (29, 36 ff.). Lily R. Taylor considers "Varro's *De Gente Populi Romani*" (*ib.* 221 ff). D. B. Kaufman prints "An Introduction to a First-Century Polymath" (Pliny) in *C. W.* (28, 33 ff.). H. W. Kamp writes "Concerning Seneca's Exile" in *C. J.* (30, 78 ff.). J. Whatmough renews the quest of Livy's Patavinity in *H. S. C. P.* (44, 95 ff.) and finds it in his speech rather than in his book,—not provincial usages but a Venetic accent. R. S. Rogers finds evidence of "Ignorance of the Law in Tacitus and Dio"; *T. A. P. A.* (64, 18 ff.). L. K. Born treats of "Animate Law in the Republic and Laws of Cicero," the ruler as the embodiment of Law (*ib.* 128 ff.). C. J. Kraemer contributes "Pliny and the Early Christian Service" to *C. P.* (29, 293 ff.); H. C. Nutting, a note on "Suetonius, *Galba* 20.2" to *C. W.* (27, 45). A. R. Wightman and C. Knapp reply in *C. W.* (27, 206 ff.) to an untenable interpretation of *quem nostrum* in Cicero, *Cat.* 1, 1, hastily proposed editorially and promptly recanted in *C. J.*

MANUSCRIPTS AND TEXT-CRITICISM

J. J. H. Savage discusses "The Manuscripts of the Commentary of Servius Danielis on Virgil" in *H. S. C. P.* (43, 77 ff.). Blanche B. Boyer considers "Traces of an Insular Tradition in the Ancient Scholia of Juvenal" in *C. P.* (29, 240 ff.). W. E. Blake treats of "Maximus Planudes' Text of the *Somnium Scipionis*" (*ib.* 20 ff.). Dorothy M. Robathan writes on "The Catalogues of the Princely and Papal Libraries of the Italian Renaissance" in *T. A. P. A.* (64, 138 ff.). J. J. H. Savage gathers "Mediaeval Notes on the 6th *Aeneid* in Parisinus 7930" in *Spec.* (9, 204 ff.). Eva M. Sanford treats of "The Manuscripts of Lucan" (*ib.* 278 ff.). C. W. Barlow reports "A Manuscript of Seneca in the Library of Indiana University" (*ib.* 322 ff.).

LITERARY CRITICISM

The most important work in this department is the posthumous volume of A. L. Wheeler, his Sather Lectures at the University of California, carried through the press by his colleagues at Princeton: *Catullus and the Traditions of Ancient Poetry,* (Berkeley, Univ. of Calif. Press, 1934). F. R. B. Godolphin discusses "The Unity of Certain Elegies of Propertius" in *A. J. P.* (55, 62 ff.). J. H. Mozley writes on "Statius as an Imitator of Vergil and Ovid" in *C. W.* (27, 45); S. E. Basset "On the Inductions of the *Iliad,* the *Odyssey,* and the *Aeneid*" (*ib.* 105 ff., 113 ff.); E. Adelaide Hahn on "Poetic Justice in the *Aeneid*" (*ib.* 145 ff.); A. R. Chandler on "The Nightingale in Greek and Latin Poetry" in *C. J.* (30, 78 ff.); J. D. Jefferis on "The Theology of the *Aeneid*" (*ib.* 28 ff.). Mary V. Braginton prints *The Supernatural in Seneca's Tragedies* (Yale Thesis, Menasha, Wis., 1933). M. B. Ogle treats of "The Sleep of Death" in *Memoirs Amer. Acad. Rome* (11, 81 ff.); S. R. Stevenson of "A Comparison of Ovid and Apuleius as Story-tellers" in *C. J.* (29, 582 ff.): S. G. Flygt on the "Treatment of Character in Euripides and Seneca: the Hippolytus" (*ib.* 507 ff.); R. C. Flickinger on "Terence and Menander Once More" (*ib.* 28, 515 ff.).

HISTORY AND BIOGRAPHY

J. G. Winter publishes *Life and Letters in the Papyri* (Ann Arbor, Univ. of Mich. Press, 1933), the 1st chapter dealing with Rome and the Romans; S. Tracy, *Philo Judaeus and the Roman Principate* (Williamsport, Pa.) K. Scott discusses "The Political Propaganda of 44-30 B.C." in *Mem. Amer. Acad. Rome* (11, 7 ff.). L. K. Geweke has "Notes on the Political Relationship of Cicero and Atticus from 63-59 B.C." in *C. J.* (29, 269 ff.). C. E. Little weighs "the Authenticity and Form of Cato's Saying *'Carthago Delenda Est'* " (*ib.* 429 ff.). D. O. Robson treats of "The Samnites in the Po Valley" (*ib.* 599

ff.); T. Frank of "The People of Ostia" the majority slaves (*ib.* 481 ff.); W. J. Oates of "The Population of Rome" (reviewing the evidence for the time of Augustus, and estimating it at 1,250,000) in *C. P.* (29, 101 ff.); R. Syme of "The Spanish War of Augustus (26-25 B.C.)" in *A. J. P.* (55, 293). J. A. O. Larsen discusses "The Position of Provincial Assemblies in the Government and Society of the Late Roman Empire" in *C. P.* (29, 209 ff.); C. E. Van Sickle, "Eumenius and the Schools of Autun" in *A. J. P.* (55, 236 ff.); F. H. Potter, "Political Alliance by Marriage" in *C. J.* (29, 663 ff.); H. M. Poteat, Cicero's political career under the title "One Who Loved His Country Well" (*ib.* 169 ff.); R. Lattimore, "Portents and Prophecies in Connection with the Emperor Vespasian" (*ib.* 441 ff.): C. C. McCown, "The Calendar and Era of Gerasa" in *T. A. P. A.* (64, 77 ff.), finding that the era of this important caravan city of Transjordania is 63 B.C.; F. W. Shipley, "Agrippa's Building Activities in Rome," (Washington Univ. Studies, St. Louis).

ROMAN LIFE

A. S. Pease contributes "Notes on Ancient Grafting" to *T. A. P. A.* (64, 66 ff.). E. Riess writes on "The Influence of Astrology on Life and Literature at Rome" in *C. W.* (27, 73 ff.); C. N. Smiley, on "Stoicism and Its Influence on Roman Life and Thought" in *C. J.* (29, 645 ff.). Gertrude M. Hirst deals with hair-dressing in "Archaeological Notes on Juvenal" (6, 486 ff.), in *C. W.* (27, 205 ff.); Bertha C. Fortner, with "Cicero's Town and Country Houses" (*ib.* 177 ff.). Ethel D. Roberts has "Notes on Early Christian Libraries in Rome" in *Spec.* (9, 190 ff.). Mary Johnston publishes a Columbia thesis, *Exits and Entrances in Roman Comedy,* (Geneva, N. Y., Humphrey Press, 1933).

RELIGION AND MYTHOLOGY

Lily R. Taylor furnishes "New Light on the History of the Secular Games" (apropos of the new Severan fragments) in *A. J. P.* (55, 101 ff.). Margaret M. Ward publishes *The Association of Augustus with Jupiter,* (Zanichelli, Bologna, 1933).

EPIGRAPHY

J. Whatmough discusses "New Venetic Inscriptions from Este" in *C. P.* (29, 281 ff.). The humor, pathos, etc. of epitaphs are treated by Lillian B. Lawler in "Some Lesser Lights" in *C. J.* (30, 67 ff.).

MEDIAEVAL AND LATE LATIN

J. W. Spargo publishes *Virgil the Necromancer* (Cambridge, 1934); J. F. O'Donnell, *The Vocabulary of the Letters of St. Gregory the Great* (Washington, 1934); Sister Maria W. Fanning, *Maphei Vegii Laudensis de Educatione Liberorum Libri Sex* (Washington, 1933). B. L. Ullman offers "A Project for a New Edition of Vincent of Beauvais" in *Spec.* (8, 312 ff.). B. E. Perry discusses "The Latin Translation of the Life and Fables of Aesop by Rinuccio da Castiglione and Its Greek Source" in *C. P.* (29, 53 ff.); A. H. Chase, "The Metrical Lives of St. Martin of Tours by Paulinus and Fortunatus and the Prose Life by Sulpicius Severus" in *H. S. C. P.* (44, 131 ff.).

GRAMMAR AND METRE

C. D. Buck's *Comparative Grammar of Greek and Latin,* exclusive of syntax (Chicago, 1933), is the most noteworthy recent product in this field. J. F. Gummere treats of *The Neuter Plural in Vergil* (Linguistic Society of America, Philadelphia, 1934). E. Adelaide Hahn sheds "Light from Hittite on Latin Indefinites" in *T. A. P. A.* (64, 28 ff.), finding all, whether relative or not, derived from simple indefinite *quis.* G. A. Plimpton describes "Grammatical Manuscripts and Early Printed Grammars" as found in his own library (*ib.* 150 ff.).

MISCELLANEOUS

E. J. Urch supplies a convenient summary for students in "Primary and Recent Secondary Sources for the Study of Roman Law," *C. W.* (27, 193 ff., 201 ff.). E. S. McCartney continues his weather-wise studies in a new instalment: "Greek and Roman Weather Lore of Two Destructive

Agents, Hail and Drought'' in *C. W.* (28, 1 ff., 9 ff., 17 ff., 25 ff.). C. Knapp, besides many annotations to articles in *C. W.* (27), publishes a list of doctoral dissertations at Columbia University (*ib.* 164 ff.). J. W. Spaeth Jr. and A. F. Pauli in the same journal continue their résumés of classical articles in non-classical periodicals (*ib.* 7 ff., 22 ff., 29 ff., 38 ff., 126 ff., 135 f., 143 f., 151 ff., 182 ff., 28, 7 f., 13 ff., 39 f.).

GREEK LITERATURE

By Robert Chisholm Horn

Dean, Muhlenberg College

ART AND ARCHAEOLOGY

Among the important publications of the year are: *Corpus Vasorum Antiquorum,* United States of America, Fascicule 3 (University of Michigan) Fasc. I, by Wilhelmina van Ingen (1933) and Fascicule 4, Robinson Collection (Baltimore, Md.), Fasc. I, by D. M. Robinson and Mary W. McGehee (1934, Harvard Univ. Press). *Excavations at Olynthus,* by D. M. Robinson (Part VII), *The Terracottas of Olynthus,* having appeared in 1933 (Johns Hopkins Press). *Hesperia* (Vol. III, No. 1), *American Excavations in the Athenian Agora,* is the third report of the American School of Classical Studies at Athens (1934, Harvard Univ. Press). H. B. Waters' *The Art of the Greeks,* revised (published this year by the Macmillan Company).

EDITIONS AND TRANSLATIONS

There are several important publications in the realm of the Papyri: *Zenon Papyri* (Vol. I), edited by W. L. Westermann and Elizabeth S. Hasenoehrl (1934, Columbia Univ. Press); *The Tebtunis Papyri* (Vol. III, Part I), by A. S. Hunt and J. S. Smyly (1933, Univ. of California Press); *A Papyrus Codex of the Shepherd of Hermas,* edited with Introduction and Notes, by C. Bonner (1934, Univ. of Michigan Press); *Papyri from Tebtunis* (Part I), by A. E. R. Boak (Vol. XXVIII of the University of Michigan Studies, Humanistic Series, 1933, Univ. of Mich. Press); *A Papyrus Roll in the Princeton Collection,* by E. H. Kase, Jr. (1933, G. E. Stechert), and *Greek Papyri of the First Century,* by W. H. Davis (1933, Harper), which is a most convenient little textbook, introductory to the subject. *The Gospel According to St. Luke,* by H. K. Luce, is one of the volumes of the Cambridge Greek Testament and takes the place of the older edition by F. W. Farrar, which however is still of value (1933, Cambridge Univ. Press). *The Epigrams of Callimachus,* Text with Translations into English Verse, by G. M. Young (published by the Oxford University Press, 1934). *Herodotus, Histories,* translated by George Rawlinson, edited by M. Komroff, is the well known translation at a low price (1934, Tudor Pub. Co.). *The Parmenides of Plato,* translated into English with Introduction and Appendixes, by A. E. Taylor (1934, Oxford Univ. Press) is welcomed. Other recent translations of parts of Plato are: *Laws,* translated and edited with an Introduction by A. E. Taylor (1934, J. M. Dent and Sons); and *Axiochus,* trans. by Edmund Spencer, ed. by F. M. Padelford (1934, Johns Hopkins Press). Homer still finds favor: *Homer's Iliad* (Books I—XII), rendered into English hexameters, by A. F. Murison (1933, Longmans, Green); G. H. Palmer's *Odyssey of Homer,* translated, with Illustrations by N. C. Wyeth (1933, Houghton, Mifflin); and T. E. Shaw's *Odyssey of Homer,* Popular Impression, published at a lower price by the Oxford University Press (1934).

LANGUAGE

The Greek Particles, by J. D. Denniston, is a large and comprehensive work on this subject, with attention to the historical development of the particles and their stylistic effect (1934, Oxford Univ. Press). Part VII of Liddell and Scott's *Greek-English Lexicon,* was revised by H. S. Jones (published in 1933 by the Oxford University Press).

HISTORY AND CIVILIZATION

Special studies of great value are: *The Athenian Assessment of 425 B. C.* by B. D. Meritt and A. B. West (University of Michigan Studies, Humanistic Series, Vol. XXXIII, 1934, University of Michigan Press); *NEOI, A Contribution to the Study of Greek Associations* (published by the American Philological Association in 1933), and *Aspects of Athenian Democracy,* by R. J. Bonner, Sather Classical Lectures for 1932 (1933, University of California Press). *Alexander the Great,* by A. Weigall, is as full of interest as his other books (1933, Putnam). *The Mediterranean in the Ancient World,* by J. H. Rose, is an interesting contribution to the study of sea power by an authority (1933, Camb. Univ. Press). *Life and Letters in the Papyri,* is by J. G. Winter. *The Jerome Lectures* (1933, Univ. of Mich. Press) gives us much valuable information of the contents of these documents. *A Biography of the Greek People,* by C. F. Lavell (1934, Houghton Mifflin), is an interpretation of the spirit of the Greek people for the modern reader. There is a second edition of Schevill and Gewehr's *History of the Balkan Peninsula, From the Earliest Times to the Present Day* (was published in 1933 by Harcourt, Brace and Company). Other works of interest are *Alexander the Great and the Unity of Mankind,* by W. W. Tarn, Raleigh Lecture on History (1933, Oxford Univ. Press); *Trade and Politics in Ancient Greece,* by J. Hasebroek, translated by L. M. Fraser and D. C. Macgregor (London, George Bell and Sons, 1933), and *The Population of Athens in the Fifth and Fourth Centuries B. C.,* by A. W. Gomme (New York, Peter Smith, 1933). *Ancient and Medieval History,* by R. V. D. Magoffin and F. Duncalf (1934, Silver, Burdett and Co.), is one of the volumes in the Becker-Duncalf-Magoffin Series. Bulfinch's *Mythology, The Age of Fable, The Age of Chivalry, Legends of Charlemagne,* appeared this year as one of the volumes of the Modern Library Giants (New York, Modern Library). The Fifth edition of *The Daily Life of the Greeks and Romans,* by Helen McClees (published in 1933 by the Metropolitan Museum of Art), is a guide to the classical collection and an excellent introduction to the study of the life of the Greeks and Romans. Recent publications this year are: *The Origin of Attic Comedy,* by F. M. Cornford, Second Impression (Macmillan) and *Greek Geography,* by E. H. Warmington, in the series entitled, ''Library of Greek Thought'' (Hutton).

LOEB CLASSICAL LIBRARY

These volumes, now published by the Harvard University Press instead of G. P. Putnam's Sons, have been published since the statement in THE AMERICAN YEAR BOOK, 1933: *Arrian* (Vol. II), by E. I. Robson; *Diodorus Siculus* (Vol. I), by C. H. Oldfather; *Athenaeus* (Vol. V), by C. B. Gulick; and *Sextus Empiricus* (Vol. I), by R. G. Bury (1933, Putnam). The following volumes are more recent: *Philo* (Vol. V), by F. H. Colson and G. H. Whitaker; *Plato, Republic* (Vol. II), by Paul Shorey, *St. Basil, Letters* (Vol. IV), by R. J. Deferrari and M. R. P. Maguire; *Aristotle, Physics,* by P. Wicksteed and F. M. Cornford; *Josephus* (Vol. V), by H. St. J. Thackeray and R. Marcus, and *Select Papyri* (Vol. II), by A. S. Hunt and C. C. Edgar (Harvard Univ. Press).

SEMITIC LANGUAGES AND LITERATURES

BY E. A. SPEISER

PROFESSOR, UNIVERSITY OF PENNSYLVANIA

GENERAL

The year 1934 will be remembered by students of the Near East for the considerable number of major publications which American scholars and American scientific institutions contributed to the several departments of this rich and varied field of study. The Orient has been attracting of late a steadily increasing number of capable workers, offering as it does practically unlimited opportunities for research and furnishing the background for a correct appreciation of vital developments in classical archaeology. This concentrated effort on the part of a combine of archaeologists and philologians has resulted thus far in adding millennia to the scope of ancient history, by rendering articulate a long series of centuries that were regarded until recently as dark and legendary. Outwardly, this brisk activity is reflected by the mounting number and notable quality of publications dealing with the Near Eastern field.

CENTERS OF ORIENTAL STUDIES

A complete survey of important books and articles on Hither Asia that appeared in America during the last twelve months would require a lengthy article. Limitations of space compel us to confine the present review to several representative studies. It will be of interest, however, to list at the outset the scientific societies and institutions responsible for a majority of these publications. They include the American Oriental Society (AOS), the American Schools of Oriental Research (ASOR), the Oriental Institute of the University of Chicago (Or. Inst.), the Universities of Pennsylvania, Yale, Harvard, Michigan, and Columbia, and Dropsie College. With one or two exceptions the above centers are now pursuing or sponsoring Oriental studies even more vigorously than in the past.

ARCHAEOLOGICAL AND HISTORICAL PUBLICATIONS

Semito-Hamitic Problems.—G. A. Barton returns after a pause of 32 years to the question of *Semitic and Hamitic Origins, Social and Religious* (Pennsylvania). A generation is a long time in a rapidly advancing discipline, and it goes without saying, therefore, that the present book is a completely new work, mature and challenging, even though many of its conclusions are still necessarily tentative.

Arabia. — J. A. Montgomery presents the available evidence on the relations between biblical history and Arabia in his authoritative and comprehensive work on *Arabia and the Bible* (Pennsylvania). Thanks to the author's enviable style, the reader is seldom aware of the effort that went into the making of this penetrating book.

Transjordan.—Nelson Glueck presents the first report on his ''Explorations in Eastern Palestine,'' Vol. XIV of the *Annual* of the ASOR (Pennsylvania). Many hitherto unknown sites of ancient Edom are carefully described in this thorough archaeological account.

Palestine.—In the same volume of the *Annual,* Millar Burrows evaluates the third chapter of the book of Nehemiah as a ''Source for the Topography of Jerusalem.'' The location of the various gates of the city is ably discussed in this essay.

Syria. — M. I. Rostovtzeff is the editor of the fifth report on the *Excavations at Dura-Europos* (Yale). C. and S. M. Hopkins, C. H. Kraeling, H. T. Rowell, P. V. C. Baur, A. D. Nock, E. T. Silk, C. B. Welles, A. R. Bellinger, and the editor himself, have all contributed to this handsome and varied volume.

Mesopotamia.—H. Frankfort presents the third report on the *Iraq Excavations of the Oriental Institute, 1932-33* (Chicago), which deals as heretofore with Khorsabad, Tell Asmar (ancient Eshnunna), and Khafaje (Opis), three unusually productive sites. The most important archaeological publication of the year is unquestionably C. L. Woolley's *Royal Cemetery of Ur* (2 vols.). Though published in England, these two magnificent volumes were gotten out with the aid of a grant from the Carnegie Corporation of New York. They represent some of the fruits of the joint expedition of the Museum of the University of Pennsylvania and the British Museum, and they include a chapter by L. Legrain and excellent color plates by Miss M. Louise Baker, both of Philadelphia.

Glyptic. — H. H. von der Osten gives us an exhaustive study of the *Ancient Seals in the Collection of Mr. Edward T. Newell* (Or. Inst., Chicago).

PHILOLOGICAL STUDIES

Egyptology.—W. F. Albright gives us a very valuable monograph on *The Vocalization of the Egyptian Syllabic Orthography* (AOS). This is the first study of the subject since the appearance of the system of W. Max Müller some 40 years ago and it derives its main support from recently discovered material of the New Kingdom bearing on the vocalic system of Egyptian. W. H. Worrel continues his investigation of *Coptic Sounds* (Michigan) in a well-documented volume.

Assyriology.—This field displayed unusual publishing activity during the year. From the pen of the late Edward Chiera alone we have no less than four volumes of matchless copies of cuneiform texts. Two of these deal with *Sumerian Epics and Myths* and *Sumerian Texts of Varied Contents* respectively (Or. Inst., Chicago). The other two add to the growing library of the exceedingly important Nuzi texts and they cover *Proceedings at Court* and *Mixed Texts* (ASOR, Pennsylvania). Here we have documents of outstanding human interest which take us back to the middle of the second millennium. Incidentally, the above four books merely serve to emphasize the loss which Assyriology sustained through the death of Chiera in the very prime of his scholarly life. A volume of older Nuzi texts, dating from the middle of the third millennium, is contributed by Th. J. Meek, who has edited *The Old Akkadian Texts from Nuzi* (Harvard). Th. Jacobsen supplies an essay on *Eshnunna and its Inscriptions* (Or. Inst., Chicago).

Comparative Grammar. — L. H. Gray enters the difficult and neglected field of comparative Semitic philology with his *Introduction to Comparative Semitic Linguistics* (Columbia). The book fails to solve many of the problems which the subject still presents, but it is an excellent summary of ascertained facts and should stimulate further researches.

Hebraica and Judaica. — M. H. Segal contributes a valuable essay on *The Evolution of the Hebrew Text of Ben Sira* (Dropsie College). I. Davidson furnishes an exemplary edition of Salmon ben Yeruhim's *Book of the Wars of the Lord* (Jewish Theological Seminary, New York).

Hittite Studies.—E. H. Sturtevant continues his fruitful researches in the field of Hittite philology by publishing *A Hittite Text on the Duties of Priests and Temple Servants* (AOS).

INDO-EUROPEAN LINGUISTICS

BY J. ALEXANDER KERNS

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GENERAL

The outstanding publication of the year is L. Bloomfield, *Language* (Henry Holt), a revised and enlarged form of the author's *Introduction to the Study of Language* (1914). Cf. also the following articles: F. H. Blake, ''The Origin of Pronouns of the First and Second Person'' (*AJP*,* liv, 244-248); F. Edgerton, ''Sievers' Law and Indo-European Weak-Grade Vocalism'' (*L*, x, 235–265); M. Owadesh, ''The Phonemic Principle'' (*ibid*, 117-129); E. H. Sturtevant, ''Adjectival i-Stems in Hittite and Indo-European'' (*ibid*, 266-273).

HITTITE

Cf. W. Petersen, ''The Relation of Hittite Verbs in–a(?)–to the Thematic Vowel Class'' (*L*, ix, 291-297); *id.*, ''Vowel Assimilation in Hittite'' (*JAOS*, liv, 161-168); E. Sapir, ''Hittite hapatis 'Vassal' and Greek *σ̄παδος*'' (L, x, 274-279).

INDO-IRANIC

Of outstanding importance is the appearance of: M. Bloomfield, F. Edgerton, M. B. Emeneau, *Vedic Variants*, III; *Noun and Pronoun Inflection*, (concluding volume of this series; published by the *LSA*.). Cf. also L. C. Barrett, ''Three Paipalada Fragments'' (*JAOS*, liv, 70-74); R. G. Kent, ''More Old Persian Inscriptions'' (*ibid*, 34-52).

GREEK

Cf. M. Parry, ''The Traces of the Digamma in Ionic and Lesbian Greek,'' (*L*, x, 130-144); C. C. Coulter, ''The Speech of Foreigners in Greek and Latin Comedy'' (*Phil. Quart.*, xiii, 133-139).

ITALIC

The outstanding publication of the year is: R. S. Conway, J. Whatmough, S. E. Johnson, *The Prae-Italic Dialects of Italy* (in three volumes; Harvard Univ. Press). Cf. also the following articles: E. H. Sturtevant, ''The Development of Prehistoric Latin Accented *woi*'' (*L*, x, 6-16); J. Whatmough, ''New Venetic Inscriptions from Este,'' first supplement to the larger work cited earlier in this paragraph (*Class. Phil.*, xxix, 281-292); J. F. Gummere, ''The Neuter Plural in Vergil'' (dissertation published by the *LSA*).

ROMANCE

Cf. G. L. Trager, ''On the Classification of the Romance Languages'' (*Rom. Rev.*, 25, 129-136); R. Davis, ''The -ra Indicative in Fifteenth Century Spanish'' (*ibid*, 218-220); W. E. Knickerbocker, ''Dissimilation of Vowels in Spanish'' (*ibid*, 219-223); C. C. Rice, ''Hispanic Etymologies (*L*, x, 27-31); E. B. Williams, ''Radical-changing Verbs in Portuguese'' (*ibid*, 145-148).

GERMANIC

Cf. W. Petersen, ''The Dual Personal Pronouns in Germanic'' (*JEGPh*, xiii, 64-67); A. M. Sturtevant, ''Gothic Syntactical Notes'' (*AJP*, liv, 340-352); A. W. Porterfield, ''Perceptual Sense in Gothic'' (*JEGPh*, xxxiii, 205-218); G. T. Flom, ''Vowel-harmony in Old Norse and Northern Aberdeenshire Scotch'' (*ibid*, 178-193); A. M. Sturtevant, ''Certain Phonetic Tendencies in Old Norse'' (*L*, x, 17-26); *id.*, ''Old Norse Etymologies'' (*JEGPh*, xxxiii, 89-97); F. W. Grube, ''Cereal Foods of the Anglo-Saxons,'' a lexicographical study (*Phil. Quart*, xiii, 140-158); A. S. C. Ross, ''The Origin of the s – Endings of the Present Indicative in English'' (*JEGPh*, xxxiii, 68-73); C. Goetsch, ''The Phonology of the Low German Deeds in the Oldest Registry at Riga, Latvia'' (diss.; published by the *LSA*); H. Merritt, ''Old High German Scratched Glosses'' (*AJP*, lv, 227–235); H. Rosen, ''Old High German Prepositional Compounds in Relation to their Latin Originals'' (diss.; published by the *LSA*); C. T. Carr, ''The Oldest Use of the Preposition 'zu' in German'' (*JEGPh*, xxxiii, 219-221); E. Voss, ''The Cradle of the Modern High German Literary Language'' (*Germ. Rev.*, ix, 266-271).

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*Abbreviations: *AJP, American Journal of Philology; Class. Phil., Classical Philology; Germ. Rev., Germanic Review; JAOS, Journal of the American Oriental Society; JEGPh., Journal of English and Germanic Philology; L., Language; LSA, Linguistic Society of America; Phil. Quart., Philological Quarterly; Rom. Rev., Romanic Review.*

LIBRARIES

By Beatrice Sawyer Rossell

American Library Association

MAJOR ACTIVITIES

Relief Projects. — Two major activities have occupied libraries during the year: (1) providing employment for thousands of relief workers; and (2) planning on a national and state basis for immediate and future developments which would place and keep libraries in line with social progress. As soon as work relief projects were acceptable, state library agencies, public, college and other library groups submitted proposals to emergency relief administrators for the use of relief workers to make surveys of existing library conditions with a view to improving them; to extend service to people now without it; to assist in developing community programs of adult education; to carry forward needed research; to renovate and redecorate library buildings; to bring up to date routine processes such as binding, which were long in arrears; and to restore services which had been reduced or eliminated because of drastically cut budgets. The total number of workers used by libraries is unknown, but as many as 500 at a time have been used by a single state agency; as many as 900 at a time by one of the largest urban libraries.

Library Planning. — The Federal tendency to emphasize planning both for the nation and for individual states and the increasingly critical situation of libraries faced with widening demands and opportunities and narrowing limitations, prompted the American Library Association early in 1934 to appoint a national planning committee to draw up recommendations on which national and state planning could be based. Council action on some of these recommendations is reported under the American Library Associcition. Forty states and the District of Columbia are now doing library planning through state planning committees or their equivalents. The Louisiana Library Commission's proposal to the state tax reform commission was reported last year. In Tennessee a plan for complete library development in the state has been submitted to the state education commission embodying both immediate objectives and a long-time goal. In Illinois, the state library association has unanimously indorsed proposals to introduce into the next regular session of the legislature measures intended to finance a statewide system of regional library service to nearly 2,000,000 people now without access to public libraries, to create an emergency book fund which would be allocated to establish libraries whose book collections have been drastically depleted by the demands made upon them during the last five years, and to provide for future certification of professional library appointees.

Use of Established Libraries.—The number of books borrowed from public libraries has dropped sharply since the peak reached in 1933, according to reports received by the American Library Association. At the same time, the number of borrowers has continued to increase in some libraries, and so has the use of the nonfiction collection. Depleted book stocks, enforced reduction of services, reemployment of some readers, and the lowered morale of others unemployed for months or even years, are some of the reasons given for decreased circulation.

LIBRARY EXTENSION

Service to New Areas.—As already noted, library service to new areas has been provided in many sections of the country through the aid of relief workers. In Mississippi, informal local book service is being developed on a county basis, and interest in reading and adequate library service has been aroused by several hundred relief workers connected with a statewide project of the Mississippi Library Commission. As a result of a state project of the American Legion Auxiliary, Arkansas Department of Service, public libraries have been established in 14 Arkansas towns with relief workers in charge. Illinois is encouraging county book automobile service to rural people from established libraries by offering to provide relief workers to drive the trucks and to supply books from the State Library Extension Division. One such truck is already in operation and others are planned. Several locally sponsored county projects are in progress in a number of states, many of them using relief workers.

Large Unit Library Demonstrations.—The first Rosenwald county library demonstration to be placed on a permanent basis with complete support from public funds is that of Richland County, (Columbia) South Carolina. An annual tax of one mill has been voted. The Vermont Library Experiment Committee has initiated a one-year library demonstration from the St. Albans Public Library to neighboring towns and rural districts.

Citizen Interest. — Active citizen participation in library development has been an outstanding feature of the library extension program this year. In many instances citizen activities have been closely connected with library planning. Cooperating national agencies have also devoted much effort to library projects during the year. The National League of Women Voters has added the public library to its list of topics recommended for study, along with schools, in its Department of Government and Education.

ADULT EDUCATION

Libraries and Adult Students in the EEP.—Libraries generally have assumed an active role in connection with the emergency classes for adults provided by Federal Emergency Relief Administration funds. In some cases libraries have been the organizers and promoters not alone of such classes but also of community adult education councils, and in many places have united the formal and informal education agencies to plan for community cooperation under the Emergency Education Program. Libraries have frequently housed many of the classes themselves and carried book service of various kinds to classes in schools and other places. They have employed relief workers to act as readers' advisers, classroom visitors and surveyors to introduce reading and library services to those attracted by the free EEP classes, many of whom had not previously been library users.

Reading and the CCC.—The army is gradually adding to the camp libraries and they are being built up with gift and free material in many individual camps by the activity of the camp educational advisers. There also has been fruitful effort on the part of library agencies and Civilian Conservation Corps officials to acquaint these camp educational advisers with the book and service resources of state and local libraries, and this has furnished men in the camps with much of the reading matter used in connection with camp educational programs.

Readable Books. — The American Library Association has maintained its enlarged Subcommittee on Readable Books to try to evolve some solution of the problem that every year becomes more important and pivotal, the problem of an adequate supply of books and pamphlets which are at once simple, brief, attractive, interesting, and adult in tone. The year saw the issuance in large numbers of the pamphlet, *Books of General Interest for Today's Readers*, compiled by Doris Hoit and sponsored jointly by the U. S. Office of Education, the American Association for Adult Education, and the American Library Association. This sought to list some 800 available books that in some degree approached the requirements for readable books for adults. Its distribution was mainly to CCC camps, EEP classes, and libraries. Following this the Cleveland Public Library prepared and the American Library Association distributed a list of about 350 *Readable Pamphlets on Subjects of General Interest.*

A noteworthy two-year study on "What makes a book readable" has been concluded this year by Dr. William S. Gray and Bernice Leary, of the University of Chicago. This study has resulted in devising a means of objectively measuring the difficulty of a given book for a given type of reader as regards certain factors that have been found to have significant influence.

The consensus of opinion among librarians now seems to be that readable books suited to the needs of a large proportion of our population do not exist in any significant quantity and must be written. An interesting direct attack has been made on the problem by the Study Materials Research Project of the CCC which is sponsored by the American Council on Education. The attempt is being made to write simple, interesting and attractive pamphlets in the social sciences for use by students in the CCC and similar groups.

Special Adult Education Services to Libraries.—It is significant that the number of libraries maintaining readers' advisory services has remained practically the same in spite of widespread curtailments of library services generally. Some new advisory services have been added and some have suffered a shortening of hours of staff, but about 50 libraries are now maintaining such service in some form. The *Handbook of Adult Education,* 1934. gives details of some kind of adult education service rendered by 80 libraries.

LIBRARY EDUCATION AND PERSONNEL

Unemployment. — In view of the continued state of unemployment of many trained librarians, in spite of considerable reduction in the number of students enrolled in library schools, the Board of Education for Librarianship of the American Library Association early in the year reaffirmed its policy of discouraging the establishment of new library training agencies, and also urged that library officials raise requirements for appointments in library service.

Certification. — Library associations in a number of states had under consideration plans for presenting to the next legislature bills authorizing the legal certification of librarians as the best means of safeguarding in the future the employment of trained, qualified persons. Only 6 states at present have legal requirements for librarians of public libraries; 7 states and the District of Columbia have voluntary certification schemes.

Fellowships and Scholarships. — The American Library Association Committee on Fellowships and Scholarships made awards to eight applicants from the United States and two from Canada from the fund of $12,000 for use of American students and $3,600 for Canadian students, granted by the Carnegie Corporation for advanced study in library science in the year 1934-35.

Library Schools. — The Carnegie Corporation granted approximately $128,000 for use in the year 1934-35 to the library schools connected with the following universities: California, Chicago, Columbia, Denver, Emory, McGill, North Carolina, Western Reserve, and to Hampton Institute Library School. The General Education Board made a grant of approximately $35,000 for use in 1934-35 to the library school at Louisiana State University, George Peabody College for Teachers, and the College of William and Mary.

Salaries.—Salaries for the most part remained far below normal. Many of the relatively few positions secured by trained and experienced librarians were reported to be temporary or part-time.

RESEARCH

Bibliography. — The development of research in library schools and studies now under way at the Graduate Library School of the University of Chicago are reported in an article by Louis R. Wilson in the *Library Journal,* April 15, 1934. Two studies undertaken at the same school since that article was written are on the acquisition of documents essential to research in European libraries, and on Sixteenth Century books in the major libraries of Chicago. Studies being made at the School of Library Service, Columbia University, were reported by Ernest J. Reece and research projects under way at the University of Illinois, by Phineas L. Windsor in the *A.L.A. Bulletin*, September, 1934. Some research in the field of bibliography is being carried on by individual libraries, the Chicago Public Library, for example, just having issued during the year a union list of the publications of Chicago and Cook County.

Photographing newspapers on film is an experiment undertaken by the New York Public Library both in the interest of preserving perishable records and of reducing space required to house them in original form. "Preservation of Records in Libraries," the report of a study undertaken by the Bureau of Standards and the National Research Council with the aid of the Carnegie Corporation, was printed in the *Library Quarterly* for July, 1934. At the Huntington Library in California, the detection of manuscript forgeries and photographing documents with a new type of ultra-violet light source are two subjects receiving attention. Reduced scale copying is a matter of present investigation by librarians and others concerned with material for research.

PUBLICATIONS

Publications of 1933-34 in addition to those mentioned elsewhere in this article included: *Estimate of Standards for a College Library,* by Blanche P. McCrum; *Organization of Knowledge in Libraries and the Subject Approach to Books,* by Henry E. Bliss; and *The University Libraries,* by M. Llewellyn Raney.

COLLEGE AND UNIVERSITY LIBRARIES

University and college as well as public libraries are concerning themselves with regional developments and with coordination of their services. Plans to make Denver's university and public libraries a bibliographical center for research workers in the Rocky Mountain region are now under consideration and progress has been made in coordinating the services of college, public and other libraries in Nashville, Tenn. Relations between students and the library appear to receive increasing attention. Campus libraries, browsing rooms, courses on the use of the library are more and more general. Income reductions in college libraries reporting to the American Library Association for 1933-34 ranged from 6 to 59 per cent, the average being 19 per cent. A few libraries, however, reported increased incomes, notably Iowa State College, Louisiana University, University of North Carolina, and Oregon State. A review of college library news for 1932-33 appeared in the December 15, 1933, issue of the *Library Journal.*

WORK WITH THE BLIND

Talking Books.—A new invention called a "talking book" has been developed by the American Foundation for the Blind which will open a new door to literature to blind people. Not more than one-quarter of the sightless in the United States now have any practical use of braille books. A description of the invention appeared in the *Library Journal,* April 1, 1934.

FUNDS FOR LIBRARY WORK

A report on funds given to further library development by the Carnegie Corporation during 1932-33 will be found in the January, 1934, issue of the *A.L.A. Bulletin.* The sum of $375,000 has been given by the General Education Board to Mt. Holyoke College for the extension of the Willeston Memorial Library on condition that the college furnish the remainder of $555,000, the total neded for reconstruction planned.

NEW BUILDINGS

Columbia University's new $4,000,000 library given by Edward S. Harkness, and Lockwood Memorial Library, the gift of Thomas B. Lockwood to the University of Buffalo, were dedicated in 1934. The District of Columbia has appropriated $150,000 for the erection of the Georgetown Branch Library and contracts have been awarded amounting to more than $100,000 for adding two wings to the Purdue University Library.

Among public works grants for public library buildings have been those made to Rochester, N. Y.; Toledo, Ohio; East Moline, Ill.; Everett, Wash.; and Ponca City, Okla. PWA grants for college and university libraries have been made to the State College of Agriculture, Amherst, Mass.; Howard University, Washington, D. C.; Temple University, Philadelphia; and the University of Utah, Salt Lake City. A grant has also been made for a library at the state prison in Ossining, N. Y.

AMERICAN LIBRARY ASSOCIATION

Officers. — Officers for 1934-35 elected at the 56th annual conference of the American Library Association are: Charles H. Compton, Public Library, St. Louis, president; Mildred H. Pope, State Library, Olympia, Washington, first vice president; James Thayer Gerould, Princeton University Library, second vice president; Matthew S. Dudgeon, Public Library, Milwaukee, treasurer. The conference was held June 25-30 in Montreal, with 1,900 of the association's 11,700 members and several delegates from abroad present. The 1935 Conference will be held in Denver.

Council Action.—National library planning was the chief subject discussed at Montreal, where the Council endorsed Federal aid for libraries and assumption by the national government of responsibility for leadership in the library movement; the enactment of a law in every state providing for the certification of librarians; state aid for school libraries; close coordination of university and other large libraries to increase the accessibility of research materials to all scholars and advanced students; and the federation and coordination of public libraries in large systems, each system to serve a metropolitan area, a large county or several counties. Council resolutions called attention to the serious shortage of books existing in public libraries; advocated the continuation of work relief projects in libraries, especially those giving employment to professional people; adopted as a report of progress recommendations regarding schemes of library service; approved specifications for book-binding; and authorized the association to resist any downward changes in the discounts allowed to libraries of all kinds.

Action on Discount Schedule.—Following the association's protest, a schedule of discounts to libraries proposed by the Booksellers' Code Authority was withdrawn in August. If it had been approved, the book-buying power of libraries would have been reduced by approximately $1,500,000 annually.

Endowment Fund Completed.—The $2,000,000 Carnegie Corporation endowment has now been completed, bringing the total endowments of the association to approximately $2,160,000.

Newbery Medal Award.—*Invincible Louisa,* by Cornelia Meigs, received the Newbery medal award in 1934 as the most distinguished contribution to children's literature published during the preceding year.

Publications.—During 1934 the Association published the following tools for the use of librarians and library schools: *A Study of Rural School Library Practices and Services,* report of a survey conducted by Edith A. Lathrop of the U. S. Office of Education; *Library Literature 1921-1932,* an extensive bibliography; *The Library's Own Printing,* by Frank K. Walter; *Classification; an Introductory Manual,* by Margaret Herdman; *Countrywide Library Service,* by Ethel M. Fair; *Guide to the Official Publications of the New Deal Administrations,* a bibliography compiled by Jerome K. Wilcox; *Public Documents,* a compendium of papers and addresses on public documents delivered at the 1933 conference of the association; *Reference Books of 1931-1933,* by Isadore G. Mudge; *Library Legislation 1932-1933,* a supplement to *American Library Laws; Books of General Interest for Today's Readers,* a bibliography compiled by Doris L. Hoit; *Catalogers' and Classifiers' Yearbook No. 3; Easy Reading Books;* and *Twentieth Century Forces in European Fiction,* a distinguished study of contemporary European fiction available in translation, done by Agnes Camilla Hansen.

XXV. LITERATURE AND LANGUAGE

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Academy of Arts and Letters, 633 W. 155th St., New York City.

American Academy of Arts and Sciences, 28 Newbury St., Boston, Mass.

American Booksellers' Assn., 35 E. 20th Street, New York City.

American Council of Learned Societies, 907 Fifteenth St., N. W., Washington, D. C.

American Library Assn., 520 N. Michigan Ave., Chicago, Ill.

American Newspaper Publishers' Assn., 370 Lexington Ave., New York City.

American Philosophical Society, Independence Sq., Philadelphia, Pa.

American Society of Composers, Authors and Publishers, 1501 Broadway, New York City.

American Society of Newspaper Editors, Buffalo Evening News, Buffalo, N. Y.

Assn. of National Advertisers, 330 W. 42d Street, New York City.

Associated Press, 383 Madison Ave., New York City.

Bibliographical Society of America, Grosvenor Library, Buffalo, N.Y.

Foreign Press Publicity Service, 258 Fifth Ave., New York City.

German Club, 5 E. 66th St., New York City.

National Assn. of Book Publishers, 347 Fifth Ave., New York City.

National Editorial Assn., 131 E. 6th St., St. Paul, Minn.

National Institute of Arts and Letters, 633 W. 155th St., New York City.

National Publishers' Assn., 232 Madison Ave., New York City.

Newspaper Advertising Executives Assn., Richmond Palladium, Richmond, Ind.

Peoples Institute, 70 Fifth Ave., New York City.

United Press Assn., 220 E. 42d Street, New York City.

U. S. Publishers Assn., Inc., 386 Fourth Ave., New York City.

AMERICAN LITERATURE

American Dialect Society, Bascom Hall, Madison, Wis.

Authors Guild, 9 E. 38th Street, New York City.

Authors League of America, Inc., 9 E. 38th Street, New York City.

Catholic Writers Guild of America, 128 W. 71st St., New York City.

National Assn. for American Speech, 174 W. 76th Street, New York City.

Simplified Spelling Board, Lake Placid Club, Essex County, N. Y.

LANGUAGE AND LITERATURE

American Classical League, First National Bank Bldg., Princeton, N. J.

American Oriental Society, Trinity College, Hartford, Conn.

American Philological Assn., State University of Iowa, Iowa City, Ia.

Dante League of America,, Inc., 15 Gramercy Park, New York City.

Dickens Fellowship of New York, 15 Gramercy Park, New York City.

Modern Language Assn. of America, 100 Washington Square E., New York City.

DIVISION XXVI

THE ARTS

ARCHAEOLOGICAL DISCOVERY

By R. V. D. Magoffin

Professor, New York University

UNITED STATES

New Mexico. — The School of American Research under its Director, E. L. Hewett, has added much to our knowledge of Chetro Ketl. Its six-acre site is shown by tree rings to have been occupied from about 993 to 1116 A. D. The Great Sanctuary, or Sun Temple, differs from the usual form of the kiva, particularly in that the entrance is not by way of the roof. The Community House is found to have been five stories high, with masonry walls covered with plaster. Further work was done at the "East Tower," and in the West Plaza Kiva. Excavation was begun on the "Yellow House" at a new site about a mile from Chetro Ketl. An archaeological survey of the Chaco Province was also made by members of the School.

ANATOLIA

Troy.—Excavations begun in 1932 by the expedition of the University of Cincinnati were continued by W. T. Semple, C. W. Blegen, J. L. Caskey, and A. J. B. Wace (Dörpfeld was with the expedition for several weeks). Six groups of floors of considerable depth belong chronographically to the First City, and have been designated Ia, Ib, Ic, and Id. Much pottery was found on all levels, the richest lot being in Ic. Six houses belonging to the Fifth City were laid bare, and in one a novel domed oven was found. The many objects discovered include: of Greco-Roman period, 15 pieces of marble sculpture, 34 terra cottas, 13 inscriptions, and 339 coins; from pre-classical times, 20 articles of bronze, 64 of stone, 42 of bone, 205 of terra cotta. Renewed operations of supposed sites of Troy, one begun in 1840, are again challenging the Schliemann-Dörpfeld site of Hissarlik. Three sites now being examined are larger than Hissarlik. Atchi Kïoi has 5 times, Bali-Dagh 5½ times, and Eski-Hissarlik 23 times the area of Troy VI.

ENGLAND

Early Age Discoveries.—Local archaeological work continues all over England. An Early Bronze Age site has been found seven miles from Ely; three Late Bronze Age barrows on the Cloven Way, in Colbury, Hampshire; a hoard of plough coulters in Silshester; prehistoric remains from Selsey Bill in West Sussex, and a camp site at Titterstone Clee Hill in Shropshire.

GREECE

Athenian Agora.—Professor Leslie Shear has cleared the western side of the Agora situated below the "Theseum," and as Dr. Shear pointed out to the writer of these notes, it now can be realized from what point this magnificent temple was meant to be seen. Later in the season the Tholos was found, and Shear now has a point *d'appui* from which to identitfy the foundations of adjacent buildings. A few weeks later Shear discovered the corner of the wall surrounding the ''Altar of the Twelve Gods,'' and near by, an inscription dedicated to these devinities. Among the more important discoveries are a Mycenaean burial with broken pottery and a signet ring of gold with an intaglio group that recalls the legend of the Minotaur and the Athenian maidens. A small Byzantine chapel has yielded a fresco of Simon Stylites in an unusual iconographic form. Also there were found a IV century relief of a quadriga done by Krates, son of Heortios of Peiraeus, a magnificently draped statue of a colossal female figure in Pergamenian style, the head of—perhaps—a Greek philosopher, although it may be identified as an Herodotus; two splendid portrait heads of a Roman lady and a Roman man, a number of lead *Tabellae defixionum,* and a large number of coins, bringing the total number of coins found in the past three years to 24,000.

Athena Parthenos.—In a very neat exposition, based on his find of five large dowel holes of a late type, W. B. Dinsmoor proves that the statue, which was stripped of its gold before 295 B.C. and then burned in the II century B.C. and reerected at the same time the interior of the temple was reconstructed, is the real piece of sculpture from which the creation of most of our copies derived and which date about 160–150 B.C.

Fortezza, near Knossos. — Seven tombs have been found of which four were undisturbed pure Protogeometric burials. Among the finds in the vases were: An inscribed faience ring, scarabs, a saucer of transparent white glass, which refutes the theory that glass, prior to the time of Augustus, was colored, due to iron content—scores of bronze knives, spear heads, axes, and swords.

Heraeum in Perachora. — Excavation continued during the year laid bare a thick stratum of geometric pottery, with which were found spits of bronze, gold rings, many scarabs, clay models of houses or temples, inscribed dedications, and considerable *bucchero* ware.

IRAQ

Tell Asmar.—The excavations of the two previous years carried on by the Iraq Expedition of the Oriental Institute of the University of Chicago have been attended by continued success. Under the structure containing the splendid hoard mentioned in our last year's report, a jar was found that contained over 60 copper bowls, together with lamps, strainers, and silver-hilted daggers, identical in shape with articles of gold and silver found at Ur. On two bowls were the inscribed names of two hitherto unknown kings, with dedications to the ''House of Ab-u,'' Lord of Vegetation. The claim is made that the newly found shrine is really the temple of the ''House of Ab-u,'' and that the articles comprising the hoard are a complete service for ritual banquets.

Khorsabad.—A new building, the temple of Nabu, patron of historians and scribes, with an area of 420x250 feet, has been found by the Expedition of the Oriental Institute. That a library existed in this temple has been known, but the supposition has obtained that it was removed to Nineveh by Sennacherib. In any event, an invaluable document was overlooked or left. It is a tablet measuring 18x14 cms. covered on both sides with cuneiform characters in four columns. This writing gives a complete list, in unbroken line, of the kings of Assyria from the third millennium (*i.e.,* 1000 years earlier than names heretofore known) to Ashur-Nirari V (753-746 B.C.). In all, the names of 95 Assyrian kings are given. Ushpia, in this list, is the name of the earliest king whose name is known, and he appears as the last of a dynasty of nine kings. As the early Dynastic Period in Egypt seems to be about 3000 B.C., Babylonia, of a time before the earliest arrival of Semites, would appear to have attained, by this discovery, a priority over Egypt.

Ur.—The excavations have come to a close after twelve years of work which have brought to light facts of historical and artistic import which only the final printed report—eagerly awaited—can give the data for judgment.

ITALY

Rome.—Preparations for the Augustan Bimillennium, dedication fixed for Sept. 23, 1937, go on apace. Models of the reconstructed Forum of Augustus, the Claudian and Trajanic ports of Ostia, and Isola Sacra, Hadrian's villa at Tivoli, arches, bridges, theatres, etc., from all over the ancient Roman world, have been begun. The work on the new Via dell' Impero and the Via dei Trionfi are already furnishing many new problems the settlement of which will give a better idea of the temple of Venus and Rome and its two approaches, of the Arch of Constantine, and of the Imperial Fora.

Ardea.—The director of the Swedish Archaelogical Institute in Rome, Axel Boëthius, and the International Association of Mediterranean Research, have progressed in their work by clearing entirely the temple which now discloses a typical cult center of the later centuries of the Republic. More important even is the discovery of the Basilica—of about 100 B.C.—because it is one of the two oldest specimens of that type of building.

Ostia.—Calza has found in a private house in Via del Tempio Rotonda, and published, a new fragment of the *Fasti Annali* which names 37 consuls hitherto unknown or undateable. Most important are the datings of Trajan's Forum and Basilica as 112 A.D., and the date of the dedication of Trajan's Column and of the reconstruction of the temple of Venus in the Forum of Caesar as 113 A.D. Calza is about to publish the 200 inscriptions found thus far by him at Isola Sacra across the Tiber from Ostia. All the inscriptions are pagan with the exception of three which are Christian.

Minturnae.—Jotham Johnson, director of the expedition of the University Museum at Philadelphia, has laid bare the stage, the orchestra, and the lower *cavea* of the Augustan Age theatre, finding the monumental stairways leading to the upper seats, the drainage system, and, in addition to two fine Imperial portrait heads, a number of marble fragments from which, thus far, a Hermes, a Hercules, and a Bacchus have been restored. The delimitation of the city wall was almost completed. Two hoards of coins found during the year have been discussed (Num. Notes 60) by E. T. Newell.

Capri. — The work of Amedeo Maiuri in Campania has been very fruitful. On the high point of Capri looking toward Naples, the villa of the Emperor Tiberius has been partly excavated and restored.

Herculaneum. — Maiuri has laid bare in its entirety Insula V, and has discovered a group of fine houses and shops, among which a *taberna* with its equipment fully preserved is the most important.

Pompeii.—Insula X of Regio I has been entirely uncovered. The ''House of the Lovers,'' so named from a sentimental inscription on the wall, a villa on the hills near Stabiae, and a great establishment inclosed by a quadriporticus of the Flavian Age, found at Minori near Pompeii, are the most important discoveries.

PALESTINE

Beth-Shan.—The work of the University of Pennsylvania Museum, having gone below stratum IX (Tuthmosid period in Egypt), strata XA and B (Hyksos Age), in which Early Bronze Age appeared, has gone through strata XI B and XII to virgin soil. Pottery of a new type, like that already found at Megiddo, was brought to light.

Eastern Palestine.—The archaeological survey begun last year by the Jerusalem School of the American Schools of Oriental Research, was continued by the Baghdad School, in conjunction with the Hebrew College of Cincinnati and the American Council of Learned Societies. Tells of Nabataean occupation (*e.g.,* Et-Telah) with tremendous amounts of pottery and some glass were visted or discovered. A number of mining camps of the Early Iron Age with quantities of copper slag, threw light on Deuteronomy 8, 9, where the Promised Land is described as ''a land whose stones contain iron, and out of whose hills thou canst dig copper.'' The discovery of the continuation of the Bronze Age Trade route through Transjordania, used about 2200-1800 B.C., and of the system of fortresses guarding it, make it clear why the Israelites could not go through Edom, after permission had been refused them (Numbers XXI).

Jerash.—Dr. Clarence S. Fisher of the American School in Jerusalem has continued to clear this site. Excavations have progressed so far that now Hellenistic, Roman, Byzantine, and Arab cultures can be studied in their respective strata.

Jericho.—Bronze Age tombs, the foundation of the palace and 58 store rooms in the old city—above Elisha's Fountain—of the XVI century B.C., and many scarabs, were found by Garstang. He has also dated the Fall of Jericho by comparative ceramics as about 1400 B.C., and says, further, that the walls fell, not by undermining, but by earthquake.

Megiddo.—The finds of the Oriental Institute of four levels below the three laid bare last year, gives a chronology of types that coincide with those found at Beth-shan, which will establish the sequence of Early Bronze types in northern Palestine. They show affinities with pre-dynastic Egypt and Babylonia (Jemdet Nasr), carrying us back to the end of the IV millennium B.C.

Sbeita.—The Colt Expedition of New York spent its first year at this new site in the desert south of Judea in preliminary work in moving debris out of the buildings and streets. The site is mainly Byzantine. The inscriptions already found are soon to be published by D. F. Brown.

Tell Ajjul. — Sir Flinders Petrie found 70 graves in a cemetery which seems to have been unrobbed. In one grave was an official gold ring of Tutankhamen, thus showing that the burial was likely that of one of his officials. A remarkable find of gold objects was also made but no account of them is as yet available.

Tell Duweir.—The joint excavation of the Wellcome Historical Museum of London and the Colt Expedition of New York has completed its first two years of work. The identification of the Tell as the site of the Biblical Lachish first made by Albright, has been fully confirmed.. A great amount of pottery dating from Canaanitish to Solomonic times was found. The Colt share of the pottery, as well as considerable jewelry and many scarabs, after having been on exhibition in the new Wellcome Museum for a year, has recently come to the Metropolitan, Reading, Pa., and New York University Museums. A vase found by Mr. Starkey bears an inscription in the same script as the Beth-shemesh ostracon (found by Grant of Haverford), which gives a second example of the West-Semitic alphabet that dates XV—XIII centuries B.C.

Tell el-Ful. — Albright has completed an excavation begun twelve years ago, and by establishing the historic periods and the ruins of the time of King Saul, has identified the palace-fortress and confirmed the Biblical record (Judges) of the tragedy of Gibeah.

RHODES

The Colossus. — The controversial questions on the construction, attitude, and placement of the Colossus—generally agreed upon as a statue of Helios—have been examined exhaustively by A. Gabriel. An armature of horizontal beams was covered by bronze attached by cramps and rivets, inside which were stone blocks to give the figure stability. The statue did not straddle the harbor entrance. It was a standing figure 32 meters high, on a base; the legs were set close together; the upraised right hand held a torch. A threshold block seems to have located its site where today are the ruins of Fort St. Nicholas, thus bearing out the theory of the historians of the Knights of Rhodes.

SYRIA

Ras Shamra.—The 27 characters on the cuneiform tablets found two years ago were shown by Bauer of Halle to be a Hebrew cipher dating 1400—1350. Some of the deciphered references mention two forbidden rituals described in the Old Testament, to the tabernacle provided by Moses in the Wilderness, to Kadesh as the home of the god Shalem (obviously the later name Jerusalem). A later study of the new Semitic language by J. Friedrich calls it a ''Northwest Semitic'' language having elements of Aramaic, Canaanitish, and Akkadian.

MUSEUMS

Brooklyn.—Among the acquisitions from Tell el-Amarna are limestone relief of horses, an inlay relief portrait head of Smenkhara, and an ink sketch on limestone of the head of Queen Nefertiti.

Fogg.—Harvard's share of the broken pieces of carved ivory, parts of the decoration of the ''ivory house'' of Ahab and Jezebel, are now on exhibition.

British Museum.—The best recent acquisition is the Codex Sinaiticus.

Metropolitan Museum of Art.—A limestone statue of about 1300 B.C. of Yuny, chief royal scribe, offering an enshrined statue to Osiris, is a fine late acquisition. The engraved silver bowl said to have been found by Cesnola in 1875 at Amathos in Crete, did not reach the Metropolitan Museum in New York with the famous Cesnola collection, but has just appeared, after 50 years of obscurity as to its location, in the British Museum, a gift from the estate of John Ruskin.

NECROLOGY

During the year there have died: Robert S. Conway, England's distinguished Vergilian scholar; Maurice Bosnier, French topographer and geographer; Hubert Schmidt, keeper of the Prehistoric Museum at Berlin, who was with Dörpfeld at Troy; Rui de Serpa Pinto, Portuguese archaeologist.

PAINTING

By Florence Seville Berryman

The American Federation of Arts

PUBLIC WORKS OF ART PROJECT

Painting in the United States during 1934, underwent its most eventful year of the past two decades, some authorities say, of the past three centuries. The Federal Government's active support of painting (with other forms of art) through the Public Works of Art Project, in contrast to its past indifference to aesthetic endeavor, was declared by some observers to be perhaps the outstanding single event in the history of American art.

The Public Works of Art Project was organized Dec. 8, 1933, as an undertaking of the United States Government, by a grant from the Civil Works Administrator to the Treasury Department, with the objective of employing artists at craftsmen's wages (ranging from $26.50 to $42.50 for a 30-hour week) to embellish public property with works of art. As it transpired, the great majority of such works were paintings of some type. An administrative organization was established in Washington with Edward Bruce, painter and financier, as director, and the nation was divided into 16 regions, under regional committees and subcommittees, charged with the selection and employment of the artists, and supervision of their work. Not a cent was expended for office rent for any of these regional committees; all space was donated. Some 600 volunteers, men and women interested in the fine arts: art museum directors, patrons, collectors and teachers, composed these committees. The artists were selected on the basis of their qualification as artists and their need of employment. No racial discrimination was shown; among the artists employed as qualified, were more than 30 negroes and as many American Indians.

''The American scene'' in all its phases was the subject assigned to the artists. In all other respects, they were unrestricted. The Project was discontinued April 28, 1934, the total allotment to carry it through having amounted to $1,408,381.00. More than 15,000 works of art were created by the 3,521 artists employed under the Project. These works, consisting of mural paintings, oil paintings, water colors, sculpture, graphic arts and craftwork, became the property of the Federal Government, to be placed in public buildings and parks throughout the country.

The Washington office's policy was never to force a decoration on any public building unless it was definitely approved and desired by the prospective beneficiaries. In many instances, the approval was so enthusiastic that entire communities, when necessary, raised large sums to defray costs of materials. For the artists were supposed to furnish their own materials, a serious problem for those painting murals in oils and fresco. The sum of $1,000 was raised at public mass meetings in Santa Monica, Calif., for instance, to buy materials for a large fresco mural for the public library.

It was, of course, inevitable that the Project should arouse terrific controversy. While many regarded it as the impulse for an ''American Renaissance,'' others, including disgruntled artists not employed under the Project, vociferously denounced it as a ''vehicle of favoritism.'' The Whitney Museum of American Art in New York City, (to mention a specific case) was obliged to close its doors the end of March, 1934, six weeks earlier than the date originally planned, because of demonstrations against it by artists not included in the Public Works of Art Project. Mrs. Juliana Force, director of the Whitney Museum, was chairman of the New York Division; because of this, the dissatisfied artists apparently confused the Museum with the Project.

The state of Indiana continued the Federal Public Works of Art Project as a state function. The Government's Committee on Unemployment Relief, which is the State Emergency Relief Administration, for Indiana, appointed as its own the former advisory committee for the Project. The purpose is the same.

NATIONAL EXHIBITION OF ART

A National Exhibition of Art, including more than 500 items done under the Public Works of Art Project, was shown at the Corcoran Gallery of Art, Washington from April 24 to May 20. The exhibits were selected by the various regional committees in consultation with the Washington office, each committee having been allotted a number of works based on the quota of artists employed in its region. Thirty-three states were represented. Large mural paintings had to be excluded to a great extent, but such important works were represented by preliminary designs and photographs, additional to the 500 items in the exhibition, about 425 of which were paintings. The exhibition was generally regarded as ''an accurate cross-section of the work done under the Project throughout the United States and in the various media in which the artists worked.'' The President of the United States and Mrs. Roosevelt were given the opportunity, at a preview, to choose 25 paintings for the White House offices; they actually selected 32. Mrs. Roosevelt formally opened the exhibition on April 24.

Prior to, and simultaneous with the Washington National Exhibition, various local regional shows were held in many parts of the country.

The National Exhibition gave outstanding evidence of two impressive factors: that the artists generally had regarded employment under the Project as ''a challenge to their best efforts''; and that despite the hardships they had undergone prior to their employment, little if any bitterness or despair was to be noted. Optimism and vitality, and an objective viewpoint, were the outstanding characteristics noted. This was apart from the fact that many persons did not approve of the artists' viewpoint. A retired Admiral of the United States Navy, for instance, hotly protested against a painting ''The Fleet's In,'' by a New York painter, as not representative of the spirit of the Navy, and caused it to be removed from the National Exhibition. But such instances were in the minority.

A number of exhibitions composed chiefly of paintings done under the Project, were sent on nation-wide circuits by the American Federation of Arts during the season which began in October, 1934. An extensive selection of paintings, murals and other works shown in the National Exhibition, was shown at the Museum of Modern Art, New York City, in September and October.

ART PROCUREMENT DIVISION OF TREASURY DEPARTMENT

The success of the Public Works of Art Project made possible the organization, by the Treasury Department, in November, 1934, of a Painting and Sculpture Section of the Procurement Division. This new Section though it has no relation to the Public Works of Art Project nor to relief, has kept together the same administrative force to some extent. Edward Bruce is Consulting Expert, and Edward Rowan, formerly Assistant Technical Director of the Project, is Chief of the new Section with Olin Dows as Assistant Chief. They have charge of the work of embellishing with paintings and sculpture, public buildings constructed by the Treasury Department.

P.W.A.P. EXHIBITS IN NEW YORK

Inspired by the Public Works of Art Project, the Wanamaker Stores in New York City and Philadelphia opened simultaneous regional art exhibitions in October, of paintings by 250 outstanding American artists. At the same time, the firm began to acquire a collection by means of $3,000 in purchase prizes for pictures selected by the jury. No commission was charged for paintings sold.

One more echo of the Project must be mentioned. New York City in February supplemented the Federal Government's program by holding its first Municipal Art Exhibition (the idea of Edith Halpert) composed wholly of the works of painters, and other artists resident within the greater city. Two hundred and ninety painters were represented. The exhibition was advertised as a "mile of American art," which was nearly literally true, as the exhibits occupied 5,000 feet of linear space in the forum of Rockefeller Center. More than $10,000 worth of pictures had been sold during the first fortnight, Mayor La Guardia being among the purchasers.

ART CONTROVERSY INVOLVING THE GOVERNMENT

The field of painting seems to have been a battleground during 1934, more so than in previous years, although all are enlivened by conflict to some extent. The Government's active entry was responsible for considerable controversy; but other encounters were in no way connected with officialdom. Regrettable as are such clashes from some standpoints, they nevertheless indicate vitality.

To mention two instances in which the Government was directly and indirectly involved, a mural painting by Gilbert White, which had been ordered and approved by the previous Administration, was completed for the new building of the Department of Agriculture in Washington, D. C. Pastoral in character, this mural depicts happy workers in classic attire, in an expansive landscape. Dr. Rexford G. Tugwell and Edward Bruce emphatically favored rejecting it, as not representative of contemporary America. But it is in harmony with the "government classical style" of most Federal buildings, and since its installation, has been generally admired.

A bitterly satiric mural, entitled "The Nightmare of 1934" lampooning President Roosevelt, his family and private life and the New Deal in its various phases, by a painter who remained anonymous, was exhibited by the Westchester Institute of Fine Arts, Tarrytown, New York, and attracted much attention. On August 31, a young alien from Latvia, considering the mural "unpatriotic" destroyed it with varnish remover and fire. He awaited the police, pleaded guilty to a charge of malicious mischief, and was sentenced to 6 months in prison. A month later, Jonas Lie, noted painter and president of the National Academy of Design, returned from Europe, learned of the affair, and immediately paid the amount necessary to bail out the young Latvian. Declaring he was acting personally and not in his official capacity, Mr. Lie said the sentence was ''too severe for so justifiable an act.''

Whether or not connected with the foregoing incident, Maxwell B. Starr, another painter, created a mural entitled ''The New Deal'' extolling President Roosevelt and his ideals. This work was acquired for the office of Thomas M. Lynch, Appraiser of the Port of New York, in the Custom House.

INTERNATIONAL RELATIONSHIPS

In its international relationships also, American painting was not without unfortunate incident. The United States was represented at the 1934 Biennial International Exhibition in Venice by a selection of 62 oil paintings, 30 water colors and a few prints from the permanent collection of the Whitney Museum of American Art. Mrs. Juliana Force, director, had organized the exhibition at the request of the Grand Central Art Galleries, which owns the American pavilion in Venice. The Italian management, at the request of the Paris correspondent of an American newspaper chain, hung in the vestibule of the American pavilion a portrait of a Hollywood cinema actress, painted by a Polish artist. Mrs. Force rightly objected to such an encroachment, and undertook to withdraw the entire American section if the portrait was not removed. The Italian management barred both moves, after which she sued in the Italian courts for possession. Trial of action was delayed and postponed until after the close of the Biennial, which automatically provided victory for the interlopers.

A friendly exchange took place with France; Samuel F. B. Morse's portrait of Lafayette, painted in 1825 by order of the City of New York, during the Frenchman's last visit to America, was sent to Paris to be shown at the Lafayette Centenary Exhibition as a return for France's generous loan of Whistler's ''Mother'' during 1932-33.

CENTURY OF PROGRESS EXHIBITION

The Art Institute of Chicago repeated last year's magnificent achievement. Director Robert B. Harshe and Daniel Catton Rich, associate curator of painting, assembled another ''Century of Progress Exhibition,'' in connection with the 1934 Exposition. In contrast to its emphasis during 1933 on the development of Occidental painting from mid-13th century to the present, the 1934 Exhibition stressed the growth of American painting. There were 355 native paintings and 366 foreign. The former were arranged in accordance with a scheme of four comparatively arbitrary epochs of American painting: first, 1705 to 1860, including masters who painted in the manner of the British portrait school; the second epoch comprised individualists and those influenced by the French school (Barbizon, etc.); the third epoch embraced the entry of German influence and later French influence. The final epoch was contemporary and filled the entire east wing of the Art Institute with 216 canvases arranged in galleries devoted to artists adhering to single points of view — later impressionists, realists, figure painters, aesthetic experimentalists, ''the American scene,'' Chicago painters, and American decorative works.

All the great European schools of painting were also represented in the exhibition; many important works were lent by great foreign museums. French, German, Dutch and Flemish primitives filled one gallery; Italian primitives and later works occupied two; French and English painting of the 17th, 18th and early 19th centuries were shown together, while later and contemporary French painters received extensive representation. An entire gallery was devoted to 18 works by Renoir.

James A. McNeil Whistler was represented with 18 paintings in a separate gallery at the Century of Progress Exhibition, in commemoration of the centenary of his birth (July 12, 1934) which was also signalized by other exhibitions and memorials throughout the United States at different times during the year. The American Federation of Arts devoted the first afternoon session (May 14) of its annual convention (held in Washington) to a memorial program on Whistler.

Whistler's portrait of his Mother was reproduced by the Federal Government on a ''Mother's Day'' postage stamp (3¢). In adapting this famous painting the Government designer took such liberties as cutting off the figure below the knees, obliterating the background and introducing a pot of flowers, which aroused widespread protest from individuals and organizations. But it pleased philatelists.

MEMORIALS AND AWARDS

Four American painters,—Charles Sprague Pearce, Francis D. Millet, Elihu Vedder and Charles Hawthorne —were commemorated by portrait busts unveiled in the Hall of American Artists at New York University. The bust of the first-mentioned was by the late Paul Bartlett, the others by Albin Polasek, both American sculptors. The North Shore Arts Association of Gloucester, Mass. planned a series of projects to honor the memory of great American painters. The first of these was completed by the dedication of a bronze tablet (designed by Gertrude B. Fosdick) to John Henry Twachtman on July 15, in Gloucester. It is placed on a boulder before his studio. Memorial exhibitions of works by American painters who died in 1933 were held in variout cities. Among these were shows in New York City commemorating Charles H. Davis, Elliott Daingerfield and Alfred Maurer, and at the Newark, N. J., Museum, George Luks.

Living American painters were also honored. Childe Hassam, ''as the recognized dean of American painting'' was awarded a gold medal ''for the high standard of lofty ambition . . . achieved in all media'' by the American Art Dealer's Association; and Leon Dabo received the decoration of the Legion of Honor from the French Government, to mention but two.

RADIO TALKS ON AMERICAN ART

Appreciation of American painting was fostered by two series of radio talks on ''Art in America.'' The idea was initiated by the General Federation of Women's Clubs, and made possible by a grant from the Carnegie Corporation. It was managed by René d'Harnoncourt under the general auspices of the American Federation of Arts with the cooperation of the Art Institute of Chicago, the Metropolitan Museum of Art, the Museum of Modern Art, the National Advisory Council on Radio in Education, and the National Broadcasting Company. These talks were given every Saturday from Feb. 3 through May 19, and from Oct. 6, 1934 through Jan. 26, 1935. Painting was the subject of half of the programs in the first series, dealing with the period 1600-1865, and of one-third of the programs in the second series, from 1865 to the present. The programs were arranged by Harold Stark. ''Art in America'' was the most ambitious art program yet given over the radio. Other organizations, of course, have and are still engaged in broadcasting art talks, but mostly on a local scale.

NECROLOGY

Among the American painters whose careers were ended by death in 1934, were such noted artists as the following: Gerrit A. Beneker, who painted ''the dignity and beauty of labor''; Adolphe Borie, portraitist; Howard Russell Butler, noted for his astronomical paintings; Gerald Cassidy, painter of the American Southwest; Harrison Fisher, creator of ''beautiful girls'' American type; John Kane, ''America's Henri Rousseau''; and Leonard Ochtman, landscape painter.

PUBLICATIONS

An impressive number of books on American painting (or painting in the United States) was published during the year. *The Orozco Frescoes* at

Dartmouth was published by the College, with an introduction by Orozco, descriptive text by Albert I. Dickerson, and reproductions of all the murals, which represent Orozco's idea of "The Epic of American Civilization." It aroused much adverse comment, and corresponding defense. *Portrait of America,* by Diego Rivera, produced after he had been here less than three years, comprises 60 reproductions of his fresco murals painted in San Francisco, Detroit and New York, with a foreword by Rivera and explanatory text by Bertram D. Wolfe. Thomas Craven, whose *Men of Art* was widely acclaimed a few years ago, brought out *Modern Art,* a denunciation of the "School of Paris," its Latin quarter and bohemian ways. Other publications were *Thinking Straight on Modern Art* by Henry Rankin Poore, conservative painter, and two excellent volumes in connection with the above-mentioned "Art in America" radio talks. The first of these illustrated "guides" was prepared by Harold Stark with the cooperation of the Metropolitan Museum; the second, *Art in America in Modern Times,* edited by Holger Cahill and Alfred H. Barr, Jr. They are lavishly illustrated with half-tones and color plates. *Letters of John Marin* including about 80, with several short autobiographical and critical articles, was privately printed for "An American Place" and was considered important by the critics. A series of booklets was issued by the Esto Publishing Company of Pasadena, Calif., entitled *Enjoy Your Museum.* They are for sale in museums for the nominal sum of 10¢ each and are handled by such leading institutions as the Metropolitan Museum of Art, and the museums of Baltimore, Brooklyn, Buffalo, Cleveland, Dallas, Detroit, Denver and others as far as Honolulu. *Painting* by Carl Thurston, *Water Colors* by Royal Bailey Farnum, and *Painting Since Cézanne* by Ralph M. Pearson, were among those issued.

SCULPTURE

By Rose V. S. Berry

Writer and Art Critic

TRENDS AND TENDENCIES

Art is art because it is not nature. Through the centuries artists have decided to what extent they would copy nature or depart from it in an imaginative production. Since the human body is the source from which much sculpture emanates, most observers feel themselves competent to criticize the sculptor, basing their opinion upon likeness—exactness—to the subject as they know it. Strict adherence to nature is becoming less and less the aim of the American sculptor. His trend is definitely toward an imaginative expression rather than a literal reproduction. In many instances it is away from the graceful quality of pose and treatment to one of strength, power, and even ugliness as many see it.

There is variety and personality in the work of the American sculptor to-day. The influence of the *Prix de Rome* men is seen in each year's exhibitions and in association with architecture. Sculptors with the same tendency, but not bound by a strictly classical tradition, turn to a pre-phidian usage of form. With a renascent mental content they present bulk, mass, and good craftsmanship. Others, still classically inclined, use a certain sophistication, severe beauty, exquisite finish, and a dignified, restrained stylization, with no effort for artificial grace in pose or gesture.

Archaeology is influential, supporting the theory that art inspired by nature is more lasting, more generally universal in character and appeal. Excavations in Nineveh, Babylon, Persia, Central America, and China, are affecting pose and treatment.

Savage sculpture, tribal masks, votive and funereal sculpture from the farthest lands, are all to be seen in American production.

Each year sees more of the abstract creeping into the modelled clay and bronze, too. Some of it is effective and impressive. Because it is more sculpturesque, the form barely indicated in balanced mass dependent largely upon light and shade for the real statement, is used with very real charm. Abstract extremes become involved with planes and angles, and often with tenuity. Two restraints will always limit the statue in the round; it must rise sufficiently from the shapeless mass to have form, and it must be strong enough in rising to hold itself up or it returns to the mass where it is lost. American sculpture is going to this extreme.

EXHIBITIONS

A Century of Progress Exposition. —Three comprehensive exhibitions in 1934, have served to keep American sculpture before a great public: The Century of Progress which presented American painting and sculpture chronologically, New York City's Municipal Exhibition, and the Whitney Museum's Sculpture Biennial. The national effort to assist artists gave wide-spread interest, even though the sculptors received less work than painters in proportion to their number.

Among the sculptors catalogued in the Century of Progress Exhibition were: Malvin M. Albright, Boris Annisfeldt, Maurice Bardin, George Grey Barnard, Richmond Barthe, Gladys Edgerly Bates, Chester Beach, Harold Cash, Olga Chassaing, Allan Clark, Jo Davidson, Hunt Diederich, John Donoghue, Jacob Epstein, Alfeo Faggi, Anna Glenny, Charles Grafly, Frank Duveneck, Waylande Gergory, Carl Haltsthammar, Oskar J. W. Hansen, Elizabeth Haseltine, Frederick C. Hibbard, Jo Jenks, Raoul Josset, Sylvia Shaw Judson, Mario Korbel, Gaston Lachaise, Hilda K. Lascari, Robert Laurent, Halford Lembke, Frederick MacMonnies, Paul Manship, Albert J. Beveridge, Reuben Nakian, Peterpaul Ott, Maebel C. Perry, Albin Polasek, Lawrence Hutchinson, Arnold Ronnebeck, Harry Rosen, Augustus Saint-Gaudens, Viktor Schrechengost, Janet Scudder, Emory P. Seidel, Eugenie F. Shonnard, Maurice Sterne, Albert T. Stewart, John Storrs, Lorado Taft, Polygnotus Vagis, Bessie Potter Vonnoh, Carl Walters, Heinz Warneke, Gertrude Vanderbilt Whitney, Wheeler Williams, Robert J. Wolff, Mahonri Young, Emile Zettler, and William Zorach.

New York City. — The Municipal exhibition included among its sculptors: Alexander Archipenko, Herbert Adams, Robert I. Aitken, Chester Beach, Evelyn B. L. Batchelder, Beniamino B. Bufano, George G. Barbard, Sonia G. Brown, Betty Borough, S. F. Bilotti, Saul L. Baizerman, Alexander Calder, Harold Cast, Stirling Calder, Gaetano Cecere, Jo Davidson, Hunt Diederich, Gleb Derujinsky, Rudolph Evans, Ulric H. Ellerhusen, Duncan Ferguson, Leo Freidlander, Alfer Faggi, Paul Fiene, John Flanagan, Harriet Frishmuth, Chaim Gross, Eugenie Gershov, Aaron J. Goodelman, John Gregory, Vincent Glinsky, Trygve Hammer, Herbert Hazeltine, Charles J. Hinton, Anna Hyatt Huntington, Charles A. Hafner, Paul Jennewein, Thomas H. Jones, Mario Korbel, Charles Keck, Isidore Knoti, Robert Laurent, Arthur Lee, Leo Lentelli, Georg Lober, Boris L. Lorski, Oronzio Maldarelli, Paul Manship, Edward McCartan, Elie Nadelman, Reuben Nakian, Henry Varnum Poor, Willard D. Paddock, Attilio Piccirilli, Furio Piccirilli, A. Phimister Proctor, Frederick G. R. Roth, Concetta Scaravaglionem, Maurice Sterne, Janet Scudder, Antonio Salamme, Caesare Stea, Dudley Vail Talcott, Polygnotus Vagis, Heinz Warneke, Carl Walters, Gertrude Vanderbilt Whitney, Adolph A. Weinman, Wheeler Williams, Mahonri Young, William Zorach.

The Whitney Biennial, presented work from sculptors as far away as California. Several new men were included; Aaron J. Goodelman, Chaim Gross, and Ahron Ben-Shmel, among them. A purchasing sum of $20,000 accompanies the Whitney Biennials. Sculpture by Jo Davidson, Gaston Lachaise, Arthur Lee, Sonia Gordon

Brown, Eugenie Gershoy, Warren Wheelock, Richmond Barthe, and Jo Jenks, was bought for the permanent collection.

PRIZES AND AWARDS

Logan Prize.—The Chicago Annual gave the Logan Prize for sculpture to Peterpaul Ott, on his portrait statue: "The Dancer, Harold Kreutzberg."

National Academy of Design. — The annual exhibition of the National Academy of Design included 61 pieces of sculpture. The Ellin Speyer Prize went to Herbert Haseltine for his "Short Horned Bull." The Maynard Prize went to Jo Davidson for his portrait of Mahatma Ghandi.

The Pennsylvania Academy of Fine Arts, awarded the Widener Prize to Concetta Scaravaglionem for a Mother and Child Group. The McClees Prize went to Hilda Lascari, for her Pueblo Indian Mother and Child.

The Women's National Society of Painters and Sculptors Exhibition gave Gladys Edgerly Bates two prizes, the Anna Hyatt Huntington Cash Prize, and the prize for the best composition, "Noah's Wife," carved in mahogany. Laura Gardin Fraser was awarded the second Anna Hyatt Huntington Prize for her "Catch-as-Catch-Can."

Brooklyn Awards. — The 34th annual exhibition of Brooklyn, presented a medal of honor to Ulric H. Ellerhusen for "Frontier Farewell," a fragment of his large memorial at Harrodsburg, Kentucky. George Lober was given the prize for sculpture in bas-relief.

San Diego Exhibition. —P.W.A.P. was largely responsible for the exhibition at San Diego, Calif., when the first prize for Sculpture went to George Stanley for his "Annunciation," and honorable mentions were given to Donal Hord, for his "Man With a Sheaf of Wheat," Gilbert Lueng, for his "Head of a Girl," and Ada May Sharples for a statue entitled "Temptation."

Houston Art Association. — First prize—a purchase prize—went to Mabel Fairfax Karl, for two figures, "Orpheus" and "Eurydice," carved in wood.

The Twenty-Seventh Indian Annual, gave its first prize to Simon Baus for a portrait bust.

The Prix de Rome Scholarship, this year was awarded to Reuben Robert Kramer. Honorable mentions went to Gifford McGregor Proctor of Yale University, Roy E. King of the Beaux Arts Institute of Design, and to Theodore Cotillo-Barbarossa of Yale.

The Guggenheim Scholarship, this year was awarded to Maurice Glickman, who will study in Greece, working on his own compositions the while.

ONE MAN EXHIBITIONS

Oronzio Maldarelli, who held a Guggenheim Fellowship for two years, has returned from Europe. His exhibition contained large pieces, with finished, smooth surfaces, balanced abstraction softened with light and shade.

Rhys Caparn, exhibited her Parisian work, statuettes swaying in elongated slenderness and some naturalistic modelling. Many of her subjects dealt with types.

Jo Davidson. — His exhibition included portraits of John Erskine, Mahatma Ghandi, James Joyce, Hon. Wellington Koo, William Paley, Charles S. Payson, Mrs. Harry Payne Whitney, and Franklin Delano Roosevelt modelled since the sculptor's arrival in America.

Gustav Bohland and his wife, Eileen Farnell gave a joint exhibition. His work is largely portraits and creative impressions in metal, hers is wood carving and garden sculpture.

Enid Bell included 22 works in her exhibition; she works in ebony, cherry, marble and terra cotta.

Boris Lover-Lorski included ten figures in his exhibition in almost as many media. He has worked in green onyx, carved lava, rose de France, rose de Milan, Cretan marble, and black Belgian marble.

Malvina Hoffman. — No one-man-show in this season has compared in importance with the exhibitions of Malvina Hoffman's ethnological collection. It is the largest commission hat has ever come to an American oman. She has been in wildest Africa, the South Seas, in Thibet, and nterior China, India, Malay, and apan, where her studies have to be scientifically correct to be acceptable, nd they are passed only after several uthoritative ethnologists have approved them. Aside from this, in the 10 likenesses completed, the artist has achieved real art in each composition to the extent that the art lovers will never see a purely correct racial product in the sculpture, but a highly artistic statement which only a woman of her imagination could offer.

Other sculptors who gave interesting one-man shows were: Alexander Archipenko, Brancusi, Mitchell Field, Nat Choate, Justin Sturm, Breading Furst, and John Kellogg Woodruff.

COMMISSIONS NEARING COMPLETION IN WASHINGTON

James Earl Fraser has nearly two figures for the Supreme Court Building, two figures for the Archives Building, one pediment for the Archives Building, and two groups for Rock Creek Parkway; A. A. Weinman, one pediment for the Archives Building, frieze for the Supreme Court Chamber, and pediment for Post Office Building; Gutzon Borglum, statue of William Jennings Bryan; Herman McNeil, pediment of the Supreme Court Building; Robert Aitken, pediment of the Supreme Court Building, Gompers Memorial, and two figures for the Archives Building, and C. Paul Jennewein, sculpture for Department of Justice.

CURRENT EVENTS PERTAINING TO SCULPTURE

New York City. — Sculptors have been employed this year to clean and repair the monumental pieces in New York City's parks, plazas, and streets. It was discovered that many of them had been cleaned before with steel brushes which have injured the surfaces of the sculpture. Periments had sometimes been painted over.

Ceramic Sculpture is forcing its way into American exhibitions. Some of the most attractive work in the last few years have been in this difficult medium. Mrs. Totten, of Washington, D. C., Benimano Bufano, Henry Varnum Poor, and Carl Walters are a few sculptors who are doing excellent sculpture in ceramics.

Milles.—While serving as Resident Instructor in the Academy of Art, in Bloomfield Hills, near Detroit, Milles, the Swedish sculptor has completed several large commissions which will go to Europe, among them his great Orpheus Fountain for the plaza in front of the Concert Hall, in Stockholm.

Kansas City. — William Rockhill Nelson, in leaving his fortune to Kansas City's Art Museum, inserted a clause prohibiting the purchase of work until the artist had been dead thirty years. In a recent exhibition the art lovers of Kansas City looked upon sculptor by Blasys, Borglum, Calder, Deiderich, Epstein, French, Lachaise, MacMonnies, Manship, Saint-Gaudens, Sterne, Storrs, Laurent, Korbel, Whitney, Young, Zorach, not one piece of which was eligible as a purchase for the Museum.

Credit Omissions. — Occasionally there is an oversight in the procedure of unveiling a statue or memorial monument that is unpardonable. The portrait bust of Dr. John H. Finley, recently presented to the College of the City of New York, was reported without giving the name of the sculptor, Moses Dykaar. The unveiling of the large Gompers Memorial, in Washington, D. C., a really important commission, was used in the Moving Picture News Reel, without giving the name of the sculptor, Robert Aitken. These things have happened before. When the superb Lincoln statue, of which Chicago is so justly proud, was unveiled, there was no mention of the sculptor's name, though he was the City's guest at the time, and sitting on the platform near his famous statue.

XXVI. THE ARTS

ARCHITECTURE

By Harry Francis Cunningham

Architect, Washington, D. C.

GENERAL

In so far as the individual, private practitioner of the Art of Architecture, and the results of his activities, might be concerned, there has not been any Architecture in America for some time. Some months ago, when the American Institute of Architects was assembled in Annual Convention in Washington, various high and middle officials of the National Government promised that the designs for all Federal buildings to cost more than $60,000 would be made by private architects. As soon, however, as the Convention had adjourned, a higher official of the National Government handed down an executive order which directed that all designs for all Federal Buildings—regardless of their cost—would be made in the new Procurement Division of the Treasury Department (the current version of the old Supervising Architect's Office).

FEDERAL BUILDINGS

Employment of Architects. — A tremendous force of designers and draftsmen was immediately necessary. Word of this got about with marvelous speed and thousands of applications poured in. The results suggest that the Chief of the Division, must have dumped the applications into an empty moving van and selected the necessary number while he was thoroughly blind-folded. A certain number of consulting architects (designers) were appointed, at generous salaries, and brought to Washington. Their duties are similar to those of the private practitioner, except that they do not have to worry about where the weekly or monthly pay-roll is coming from. In many cases, these designers selected to design great public buildings happen to be men who have not, so far as one can discover, had any experience in Public Work. Several of them have done notable work in the residential field and one has done a monument or two. One has heard that geography was concerned, more or less, in the selection of these designers, many of whom are very young men.

The Supervising Architect.—But one finds solace in the fact that the whole program is directed, architecturally, by Louis A. Simon, the Supervising Architect, who has had more experience on Public Buildings than any man living or dead. Simon is an excellent architect; he will—if any human being can—see that the errors of taste and judgment inevitable in a force whose members include so many young, inexperienced men, are corrected before the Federal buildings emerge from the paper state. Many, many men have been designing and drawing for many, many months. The results of their labours are yet, largely, to emerge from the paper state.

Construction on Indian Reservations. — The various Government bodies, administrations and assorted agencies have accomplished some building. A large number of relatively small buildings have been done for Indian Reservations. They are of interesting types, designed by Mayers, Murray and Phillip of New York, but it is to be regretted that given types are duplicated several times over the map and the decorations have not always been appropriate to the particular tribes whose members will use and occupy the buildings.

Housing Construction.—The Public Works Administration has devoted its energies—and its funds—to works of an engineering nature rather than to those which might nose their way into the architectural category. The Housing Division of the PWA has done—relatively—just a little less than nothing. Two projects are being built (with difficulties). On one of them the architects will lose a fair amount of money. And this is because the overloaded Administration has been neither economical, efficient nor sensible. The Housing Division of the PWA lost its soul some months ago, when Robert D. Kohn found his resignation inevitable. When Mr. Kohn resigned as Director, most of his assistants who really know Housing resigned also and have since found minor berths in other Government Bureaus.

The Home Owners' Loan Corporation has stimulated repair and remodelling work in the residential field, and has done much more toward recovery (*via* relief) than one is likely to realise, offhand. The Federal Housing Administration promises well. It is about to enter the "Second Phase" of its work, under which large Housing projects will be aided and abetted by all the means at the Government's command. A number of excellent architects have found opportunities to employ their talents in the FHA. And this is cheering, because there is a very official letter, not three months old, in which it is stated that "Mr. Moffett does not contemplate the employment of any technical men in his Administration." There are, at the present writing, at least 80 "technical men" in Mr. Moffett's Federal Housing Administration and its success is much more likely through their being there than it might have been otherwise.

Personnel.—The great trouble with all of these Government agencies which touch the building industry, seems to be that they are tremendously overstaffed. The personnel of the Washington headquarters of any one of them is quite large enough, it would seem, to handle *all* of them and have a few men left for something else. The excess of personnel has, however, helped to correct the unemployment situation in the class which was really hurt the most and it has been a great benefit, in some ways, to Washington.

DECLINE OF THE "MODERN" CULT

One notes, with great satisfaction, that the cult of the "Modern" seems to be on the decline—rapid (and apparently complete) decline. As Paul Valéry has said, "Nothing grows stale quite so quickly as mere novelty," and, the novelty of the stuff having grown thoroughly stale, the poverty of it has become increasingly apparent, even to the average American.

EDUCATION

The educational world has been in the turmoil it should have been in years and years ago, assuming, of course, that out of the turmoil will come improvement. The great trouble is—and always has been—that most teachers of architecture are men who have no experience of architecture. They have, in nearly all cases, stepped from their places as Students, directly onto the platform as Teachers. There has been too much platform-teaching, too much "ex-cathedra" architecture. One is almost tempted to hope that all architectural schools be abolished and that the embryo architect be required to take an A.B. course in a first-rate university and get his architecture—all of it—in an excellent office, being forbidden by law to call himself "architect" until he is at least 30 years of age and has had responsible charge of important work for several years.

Ellis F. Lawrence, President of the Association of Collegiate Schools of Architecture, has made a report which recites the situation, and suggests a variety of curricular reforms. Incidentally, it may be observed that one of the greatest obstacles to improvement in the teaching of architecture (if, indeed, architecture *can* really be taught), has been this very Association which seeks to standardise that which should be anything but standardised. Of course, the Committee on Education of the American Institute of Architects runs the Association of Collegiate Schools a "close second" as an impediment in the way of improvement in Architectural Education. The latest idea which has come from the Institute Committee on Education is that a number of qualified architects should constitute themselves "mentors" for the younger men. As a matter of fact the good men in the profession have been mentors, counsellors, guides for the younger men for years and without benefit of Committees or other impedimenta.

NECROLOGY

Two great architects have died during the past year—Thomas R. Kimball of Omaha and Cass Gilbert of New York. The two were as different as two men in the same profession could well be. Gilbert left many buildings, some of them excellent, a few of them beautiful, most of them large. Kimball's great monument is, the body of high ideals and fine professional principles which he implanted in the hearts of the better men in the profession and for which he fought and worked his whole life through.

PUBLICATIONS

The lean literature of architecture has been marvelously enriched during the past year by a series of critical articles appearing monthly in the *Pencil Points* magazine, from the capable and practised pen of Dr. H. Van Buren Magonigle. This series is called the ''Upper Ground,'' and Dr. Magonigle has really taken, and kept to, the upper ground from which to examine, appraise and comment upon the passing show which architecture is. The *American Architect,* in the October number, illustrates and describes with a fine thoroughness the Nebraska Capitol, the last work of Goodhue. *Architecture* (Scribner's) has been less interesting during the past year than heretofore. The *Architectural Forum* and the *Architectural Record* have not perceived the undeniable fact that the ultra-modern has had its day and that day is done.

Charles Harris Whitaker, who has been quite continuously ''vocal'' in the magazines this year, has written a book, *Rameses to Rockefeller* (Random House). The publishers imply that this is a ''readable and authoritative history of architecture and a clear explanation of architectural forms.'' It is eminently readable—Whitaker is always readable, even when he is angry as he increasingly is, of late. It is far from ''authoritative'' either as a history or as a work on architecture.

MUSIC AND THE OPERA

BY SIGMUND SPAETH

MUSIC WRITER, EDITOR AND LECTURER

CHANGING CONDITIONS IN THE MUSICAL FIELD

During 1934, the condition of music in America continued to improve, although the number of unemployed musicians was still appallingly large. Concert and operatic audiences, however, increased in size, and there were encouraging signs of a gradual return to normal musical activity.

With competition among artists keener than ever before, because of the extraordinary demands of a necessarily limited public, the whole field of music is undergoing definite change, with new emphasis on entertainment values and an almost complete abandonment of the hypocritical snobbery that once passed for taste and culture. People are no longer inclined to spend their money for things they do not really like, and a musical performer today must pass the test not only of artistic standing among his colleagues but of an individual ability to interest and please the average listener. This tendency toward a sincere and exacting appraisal of musical entertainment has been felt in every branch of the art, and extends also into the related fields of the theatre, motion pictures and literature. The radio has done its share, too, in breaking down the traditions of musical performance, insisting on the quality of human interest, and at the same time creating a new and often critical audience, of which some part must eventually find its way into the concert hall and the opera house.

THE OPERA IN NEW YORK

The Metropolitan.—Grand opera is still something of a luxury to America, and it is yet to be proved that there is actually a large "opera-minded" public in this country, apart from the foreign element, which too often is economically unequal to the task of supporting its favorite form of music. The Metropolitan Opera Company has been in financial difficulties, but managed to raise money through a special campaign in which Lucrezia Bori and Lawrence Tibbett took a prominent part. An abbreviated season was completed successfully, early in 1934, with visits to Rochester and Boston as well, and a new season began on Dec. 22, with the old opera house showing a renovated interior, including new seats in the orchestra, and a new lighting system for the stage. It was announced that the current season would be the last for General Manager Gatti-Casazza.

The *Salome* of Richard Strauss was given early in the year in New York, after having been banned 27 years ago. This time Göta Ljungberg played the title role, with Friedrich Schorr as Jokanaan, Bodanzky conducting, and settings by Donald Oenslager. But the real novelty of the season was the American opera, *Merry Mount,* with music by Howard Hanson of the Eastman School in Rochester, to a libretto by Richard Stokes, a former music critic. The opera, which had its world premiere Feb. 10, is based on a story of Puritan New England, with its principal character, Wrestling Bradford, played by Lawrence Tibbett.

Such singers as Cyrena Van Gordon, contralto, John Charles Thomas, baritone, and Nino Martini, Charles Hackett and Carlo del Corso, tenors, were added to the Metropolitan roster in the past season, and the reopening in December brought the announcement of a new conductor, Ettore Panizza, whose baton directed the initial *Aida* of the season, and of the engagement of four American singers, Helen Jepson and Mary Moore, sopranos, and Kathryn Meisle and Myrtle Leonard, contraltos, as well as the German soprano, Anny Konetzni, and the Italian tenor, Dino Borgioli.

Opera at Popular Prices. — New York included several operatic performances among the summer concerts at the Lewisohn Stadium, while the historic Hippodrome was used for a similar purpose almost throughout the year. Alfredo Salmaggi produced the conventional repertoire at popular prices, later moving to the Broadway Theatre, when Pasquale Amato took charge at the Hippodrome, and also sending a company on the road. In the fall Max Rabinoff installed the Cosmopolitan Opera Association at the Hippodrome, winning artistic success, with cooperation from the Board of Education and a special course, including lectures, for teachers. Mr. Rabinoff produced Gruenberg's *Emperor Jones,* with the negro singer, Jules Bledsoe, in the title role, and also presented Sigrid Onegin in a special performance of Saint-Saëns' *Samson et Dalila,* besides offering several Russian operas.

The Russian Opera Company, known as The Art of Musical Russia, which took part in these Hippodrome performances, also gave a season at the Criterion Theatre in New York which was full of novelty. Tcherpnin's *Ol-Ol* and the *Iolanthe* of Tschaikowsky had their first American performances, with Rimsky-Korsakoff's *Coq d'Or* given in its original form (without ballet) and such rarities as the Khovantschina of Moussorgksy. This company also took part in the Stadium and Hippodrome performances, featuring Max Panteleieff and Ivan Ivantzoff, and toured through various parts of the country.

The San Carlo Opera Company of Fortune Gallo also continued its tours, appearing in Canada as well as the United States.

Gertrude Stein's Four Saints.—A sensation was caused by the performances in Hartford and New York of Gertrude Stein's opera, *Four Saints in Three Acts,* with music by Virgil Thomson. The completely unintelligible text was beautifully sung by a company of negroes, conducted by Alexander Smallens, with unusual effects of cellophane scenery, lighting and costumes, and burlesque dancing. Mr. Thomson's music admirably fitted the words, which were obviously intended to do no more than create pleasing sounds.

Operatic Novelties.—Two important novelties were produced by the students and faculty of the Juilliard School of Music, first an opera, *Helen Retires*, by George Antheil, with John Erskine as librettist, and then *Ariadne auf Naxos*, by Richard Strauss, with Albert Stoessel conducting a student orchestra. The Radio City Music Hall, in New York, experimented with various operatic productions, including a new work, *Onteora*, by Dezso d'Antalffy, and *The Enchanted Forest*, by Maurice Baron.

Gilbert and Sullivan.—Of unusual significance, musically as well as dramatically, was the visit of the D'Oyly Carte Opera Company from the Savoy Theatre in London. This organization opened in New York at the Martin Beck Theatre in September, and played to packed houses until mid-December, after which it entered upon a successful road tour in Philadelphia, planning later to visit Boston, Chicago, Detroit and several Canadian cities. Practically all of the Gilbert and Sullivan operas were given by the visiting players, with Isidore Godfrey conducting the orchestra.

THE OPERA IN OTHER CITIES

Philadelphia.—Several of the symphony orchestras devoted part of their schedule to operatic performances, with highly interesting results. In Philadelphia an unabbreviated production of Wagner's *Tristan und Isolde* created national attention, and was followed by Bizet's *Carmen*, with a revolving stage and other novel effects, and the *Rosenkavalier* of Richard Strauss, in which Lotte Lehmann scored a personal triumph, with Fritz Reiner conducting. Just before the close of the year, Philadelphia gave a first American performance of Stravinsky's short opera, *Mavra.*

Cleveland, St. Louis, etc. — The Cleveland Symphony Orchestra, under Artur Rodzinski, also specialized in grand opera, starting with Wagner's *Walküre,* and later adding several others. St. Louis, in addition to its summer outdoor season of light opera, opened a new opera house under the direction of Guy Golterman, giving Puccini's *La Rondine* its first American performance as an opening attraction. Chicago had its share of grand opera, under varying conditions, as did Boston, San Francisco, Detroit and other cities. Summer opera was given under the baton of Alexander Smallens in the Robin Hood Dell, Philadelphia, and Greek Evans continued his presentations of light opera in the Theatre in the Woods, near Norwalk, Conn.

THE ORCHESTRAL FIELD

Philharmonic. — Symphony orchestras maintained their activities during 1934, in various parts of the country, although with considerable difficulty in some directions. The Philharmonic Symphony Society of New York campaigned for funds and succeeded in carrying out an adequate schedule, with Toscanini still the only conductor able to fill Carnegie Hall consistently. Werner Janssen, who had established himself abroad as an outstanding interpreter of the music of Sibelius, made a favorable impression in his debut at the head of the Philharmonic, and was re-engaged, with promise of unusual success, appearing also as guest conductor with other American orchestras.

New York Concerts.—José Iturbi, hitherto known as a pianist, made a successful debut as conductor at the Stadium concerts in New York, and later appeared as guest with other orchestras. Robert Russell Bennett, best known for his orchestrations of popular music, also appeared at the Stadium, conducting his own Concerto Grosso for dance band and symphony orchestra. A notable piece of work was done by Leon Barzin in New York with the National Orchestral Association, a training school for young players, in which he had the assistance of some distinguished guest artists. Walter Damrosch again gave some spectacular concerts in Madison Square Garden, in aid of unemployed musicians. Visiting orchestral conductors from abroad included Sir Henry Wood and Hamilton Harty.

Philadelphia.—Leopold Stokowski

resigned his position as conductor of the Philadelphia Orchestra owing to disagreements with his board of directors but, after much discussion and several other resignations, a compromise seems to have been effected, with the probability that he will return in future for at least some guest performances.

Boston.—Serge Koussewitzky took the lead in the presentation of new music, showing particular interest in the work of American composers. Arnold Schoenberg, now teaching in Boston, made his American debut as a conductor with the Boston Symphony Orchestra, Jan. 11, the program including several of his own compositions. Mr. Koussewitzky later introduced the symphony *1933* by Roy Harris, a piano concertino by Edward Burlingame Hill, a new symphony by Malipiero, the second symphony of Randall Thompson, a symphony by Nicolai Berezowsky, and a concerto for orchestra by Walter Piston, which was conducted by the composer. The summer "Pop" concerts of the Boston Symphony Orchestra were led by Arthur Fiedler, while Fabien Sevitzky conducted the People's Symphony Orchestra, in addition to the Philadelphia Sinfonietta, introducing among other novelties an Italian symphony by Edwin J. Stringham.

Chicago continued its orchestral concerts under the direction of Frederick Stock, with an additional Civic Orchestra conducted by Eric De Lamarter.

Other Cities. — Detroit enjoyed the leadership of Ossip Gabrilowitsch, assisted by Victor Kolar, with some opera in concert form added to its programs. Cleveland had Rodzinski and St. Louis Vladimir Golschmann, with Eugene Ormandy dividing his time between Minneapolis and Philadelphia. Karl Krueger officiated in Kansas City, while Omaha used Rudolph Ganz and other guest conductors. Otto Klemperer conducted a Beethoven cycle in Los Angeles, in addition to his later work with the Philharmonic in New York, and Issay Dobrowen appeared in San Francisco and elsewhere. In Seattle, Basil Cameron created interest with a performance of the Malipiero symphony, while in Cincinnati Eugene Goossens showed a leaning toward novelties, including a performance of Emerson Whithorne's first symphony, *Op. 49*, Jan. 12.

Summer Concerts. — Sandor Harmati made a success of the Westchester Festival, as did Albert Stoessel in Worcester. Nikolai Sokoloff maintained his leadership of the New York Orchestra, including a series of summer concerts in Westport, Conn.; Hans Kindler led the National Symphony Orchestra in Washington, D. C.; Victor Miller conducted in Syracuse, Wassili Leps in Providence, Max Jacobs in Trenton, and Wheeler Becket in Richmond, while many other cities continued to support local symphony orchestras.

THE FIELD OF COMPOSITION

Sacred Music.—Aside from compositions already mentioned, there were a number of important first performances during 1934. A Sacred Service by Ernest Bloch was presented by the Schola Cantorum at Carnegie Hall, April 11, with Friedrich Schorr as soloist. Later in the same month, and in the same auditorium, New York heard an oratorio by Pietro Yon, *The Triumph of Saint Patrick,* for the first time. A cantata, *Job*, by Nicholas Nabokoff, was included in the new music of the Worcester Festival. In connection with sacred music, mention should be made of the continuation of the Bach Festivals in Bethlehem, Pa., under the direction of Bruce Carey, several performances of Bach's *B Minor Mass,* in Boston, Philadelphia and New York, Toscanini's interpretation of the *Missa Solemnis* of Beethoven, and a unique production of the Bach *Christmas Oratorio,* sponsored by Delos Chappell, with pantomimed action by Lillian Gish and others.

Philip James, prize winner in a radio contest for composers last year, conducted his own Overture in the Olden Style on French Noels with the National Symphony Orchestra in Washington, D. C., the same program containing an orchestral concerto, *Per la Notte de Natale,* by Manfredini.

Miscellaneous.—Chicago heard a new Passacaglia, Interlude and Fugue by Leo Sowerby. There were several performances of a string quartet by Ernest Carter, as well as his ballet, *Namba.* Lazare Saminsky had an entire program of his own works presented under his direction at the French Institute, New York. There were the usual concerts of modern works given by the League of Composers, and Howard Hanson drew attention to American compositions in Rochester, which also heard his own opera, *Merry Mount.* Roger Sessions, Aaron Copland, Charles Haubiel and other composers were given frequent public performances, with Marion Bauer, Deems Taylor, Harold Morris and A. Walter Kramer adding to the American representation in the creative field.

THE INDIVIDUAL CONCERT FIELD

Youthful Prodigies.—While 1934 was rather modest in its exploitation of new sensations of the concert stage, it introduced to America several artists of distinction and also witnessed a general maintenance of standards and reputation on the part of those performers already well established before the public. Youthful prodigies received a large percentage of attention during the concert season, with the name of Ruth Slenczynski, the brilliant child pianist, flashing beyond all the rest. This little Polish-American girl, who celebrated her ninth birthday on Jan. 15, won a triumph at every appearance with her uncanny command of the keyboard, and a great future is predicted for her. Amazing performances were also given by the youthful violinists, Guila Bustabo and Grisha Goluboff, while Ruggiero Ricci, already a virtuoso, was joined in public life by his brother Giorgio, a 'cellist. Yehudi Menuhin, now a mature artist, completed his seventeenth year amid steadily growing acclaim, and was joined in sonata recitals by his sister Hephzibah, aged fourteen, whose piano-playing instantly captivated the American public, as it already had the concert audiences of Europe.

Pianists.—Dalies Frantz, a young American, made a notably successful debut at the piano, as did Leonard Shure later in the season. The outstanding sensation, however, was caused by Paul Wittgenstein, the one-armed pianist, who appeared with orchestra in a concerto written especially for him by Maurice Ravel. Beveridge Webster was another pianist to meet with success, and interesting experiments were tried by David Barnett, with an ''enharmonic'' keyboard, and Anton Rovinsky, who demonstrated the possibilities of an electrically amplified piano, invented by Otto Miessner. Guy Maier and Lee Pattison joined forces again in two-piano recitals, after several years of separate activity.

Violinists.—Jascha Heifetz, in addition to his violin recitals, played the viola at a concert of the Beethoven Association, and took part in a string quartet, and Albert Spalding added considerable radio work to his concert schedule. Fritz Kreisler, Mischa Elman and other well known violinists lived up to their reputations, as did the outstanding pianists, Rachmaninoff, Josef Hofmann, Myra Hess, Horowitz, Iturbi, Gabrilowitsch, Harold Bauer, Egon Petri, Josef Lhevinne, Mischa Levitzki, Ernest Hutcheson and Walter Gieseking, with Artur Schnabel a late addition to the list, specializing in Beethoven.

Singers.—Among the singers Grace Moore leaped into new public favor through the success of the film, ''One Night of Love,'' which displayed some of the finest vocal recording yet heard from the screen. Florence Easton returned to the concert stage, winning fresh respect for her art. A sensational debut was made in Chicago by Rosemarie Brancato, and another coloratura soprano, Amri Galli-Campi, scored heavily in opera, concerts and radio.

Composers. — The Russian composer, Igor Stravinsky, visited America late in the year, making a few public appearances, with Arnold Scheenberg also performing as well as lecturing on music. George Gershwin presented his own compositions in an elaborate concert tour, assisted by an orchestra and soloists, with himself at the piano.

Saxophone Concert. — A complete novelty for the concert stage was the saxophone playing of Cecil Leeson, who came from the Pacific Coast to astonish Eastern hearers.

THE BALLET

The Monte Carlo Ballet Russe enjoyed a successful American season, with Leonid Massine as an outstanding star. Aside from interesting performances of the comparatively familiar repertoire, they introduced a real novelty in the American ballet, *Union Pacific,* with music by Nabokoff to a realistic scenario by Archibald McLeish.

American Ballet. — Late in the year, the American School of Ballet, directed by George Balachine, presented several significant programs in Hartford, Conn., including *Alma Mater,* a parody of college life, by E. M. Warburg and Kay Swift, with sets and costumes by John Held, Jr.

European Dancers. — Two Soviet dancers from the Marinsky Theatre, Tatiana Vechestova and Wachtang Chabukani, created real interest in their recitals, and another European visitor, Nini Theilade, received considerable attention. Ballet performances under the direction of Fokine were an outstanding success at the Stadium during New York's summer season of music. La Argentina returned for an American tour in the fall, and there were audiences as usual for such established dancers as Martha Graham, Angna Enters, Doris Humphrey, Charles Weidman and the popular team of Felicia Sorel and Demetrios Vilan.

RADIO

Music is still largely an incidental matter in broadcasting, but serves as a lubricant for a vast number of programs. It is worth noting, however, that the leading symphony orchestras of the country, such as the Boston, Philadelphia, New York Philharmonic and Detroit organizations, have been heard regularly on the air, some under commercial sponsorship and some as sustaining programs. Distinguished conductors and soloists have been heard in Sunday evening broadcasts arranged by a former concert pianist, Henry Souvaine. The Metropolitan Opera Company has had its Saturday matinees put on the air, with the popular soprano, Geraldine Farrar, as commentator, and there have been operatic broadcasts also under the direction of Deems Taylor. A series of programs known as the Music Guild, directed by Walter Koons of the National Broadcasting Company, has presented unusual chamber music, with comments by various music critics. The networks, as well as local stations, have made other sincere attempts to present good music attractively, with varying success.

NECROLOGY

During 1934 England lost four important composers, and there were other deaths in the musical world, of which the following are most notable: Jan. 12, Paul Kochanski, violinist, New York; Jan. 16, Mme. Helena Paderewski, wife of the pianist, Morges; Jan. 18, Otakar Sevcik, violin pedagogue, Pisek; Jan. 21, George Reimherr, tenor, New York; Feb. 3, Eleonora de Cisneros, soprano, New York; Feb. 23, Edward Elgar, composer, Worcester, England; Feb. 24, Daniel Protheroe, composer, Chicago; March 22, Franz Schreker, composer, Berlin; March 29, H. T. Parker, critic, Boston; Otto H. Kahn, patron, New York; March 31, Joseph W. Stern, composer, New York; April 7, Ernest R. Kroeger, pedagogue, St. Louis; May 3, Wm. H. Woodin, composer, New York; May 25, Gustav Holst, composer, London; May 26, Earle D. Laros, pianist, Easton, Pa.; June 10, Frederick Delius, composer, Fontainebleau; July 9, C. Mortimer Wiske, conductor, Newark, N. J.; Aug. 20, Mme. Claude Debussy, Paris; Sept. 10, George Henschel, Aviemore, Scotland; Sept. 24, E. H. Lemare, organist, Los Angeles; Arthur D. Woodruff, conductor, Washington, Conn.; Oct. 13, Theodore Baker, editor, Leipzig; Oct. 31, Carlo Nicosia, conductor, Philadelphia; Nov. 11, Walter L. Coghill, publisher, Brooklyn; Nov. 15, George B. Penny, pedagogue, Rochester, N. Y.; Nov. 30, Philip Hale, critic, Boston; Dec. 17, Christiaan Kriens, conductor, West Hartford, Conn.; Dec. 19, Francis Plante, pianist, Mont de Marsan, France; Dec. 22, Felix F. Leifels, manager, Larchmont, N. Y.; Dec. 25, Hubbard Hutchinson, critic, New York.

THE THEATRE

BY J. BROOKS ATKINSON

DRAMATIC CRITIC, *The New York Times*

DRAMATISTS AND THEIR WORK

Maxwell Anderson.—Although the theatres were not so prosperous in 1934 as they had been in the boom years they had a very lively year and produced an uncommon number of interesting plays. The Pulitzer Prize went to ''Men in White,'' which had reached the stage in the preceding autumn, but when the announcement was made it developed that the play jury had voted for Maxwell Anderson's ''Mary of Scotland'' as its first choice. ''Mary of Scotland'' was also a product of the late months of 1933, and, with Helen Hayes and Philip Merivale in the leading parts, it held the stage until the summer months. In December of 1934 Mr. Anderson's ''Valley Forge'' was produced by the Theatre Guild with Philip Merivale in the rôle of George Washington. Like ''Mary of Scotland'' and ''Elizabeth the Queen,'' ''Valley Forge'' is a historical play in verse. It is a freely-sketched portrait of the dark days of the Revolution when Washington's faith in the ideal of liberty is buoyed up by the loyalty of the common soldier. Although it is technically inferior to ''Mary of Scotland,'' it is a distinguished piece of historical drama with a characterization in magnetic terms of a figure who often seems coldly grand in the legends of the country.

Sidney Howard, who is one of the most industrious of American dramatists, had three productions during the year: ''Dodsworth,'' dramatized from Sinclair Lewis's novel; ''Yellow Jack,'' dramatized from a chapter in Paul de Kruif's *Microbe Hunters*, and ''Ode to Liberty,'' adapted from the French of Michel Duran. With Walter Huston playing the part of the Middle Western automobile manufacturer who visits Europe for the first time, ''Dodsworth'' was one of the most popular of the year's productions. Although it was suspended during the summer, while Mr. Huston played Othello in Central City, Col., it is still visible at the end of the year. ''Yellow Jack'' represented an earnest attempt to capture the unsung heroism of experimental medicine by dramatizing the study of the germ of yellow fever in Cuba at the time of the Spanish American war. Although it was fervently admired in some quarters and remained on the stage for several weeks, it was not a popular success. ''Ode to Liberty'' is an amusing French farce which pits a woman of the leisure classes against a militant communist. Its chief distinction is the part it provides for the witty playing of Ina Claire.

Marc Connelly, who adapted ''The Green Pastures'' from stories by Roark Bradford, and Frank B. Elser, who dramatized Liam O'Flaherty's ''Mr. Gilhooley,'' made a very comic, nostalgic comedy out of the Erie Canal saga, as recorded in Walter Edmonds's ''Rome Haul.'' There were, in fact, several colorful plays drawn out of American history during the year.

Sinclair Lewis and Llyod Lewis wrote a Civil War drama entitled ''Jayhawker,'' which enjoyed the luxury of Fred Stone acting his first dramatic rôle. Although the first act was admirable, the authors were unable to finish the play as well as they began it.

Melvin Levy.—The Group Theatre, which had produced ''Men in

White'' in 1933, reappeared in the autumn with ''Gold Eagle Guy,'' by Melvin Levy. It was a flamboyant character sketch of a San Francisco pioneer.

Dan Totheroh and George O'Neil were the authors of another sketch of the San Francisco saga, ''Mother Lode,'' with Helen Gahagan and Melvyn Douglas in the leading parts. Although it had a feeling for raw romance it was not firmly written and no match for ''Gold Eagle Guy.''

Kaufman and Hart. — The first popular drama of the autumn season was ''Merrily We Roll Along,'' by George S. Kaufman and Moss Hart. Both authors are better known for their satirical farces, but ''Merrily We Roll Along'' was the drama, told backwards, of a popular playwright who had deserted the ideals with which he had entered the theatre.

Elmer Rice.—After a year's leave of absence from Broadway, Elmer Rice returned in the autumn with two dramas, ''Judgment Day'' and ''Between Two Worlds,'' both of which were put on at the Belasco Theatre, which Mrs. Rice had acquired during the summer. ''Judgment Day'' was a turbulent melodrama about Fascism based on the trial of the Reichstag Fire case, and it received a mixed press. ''Between Two Worlds'' was a character study of a group of passengers gathered on an ocean liner, and it dramatized the conflict existing between the Communist point of view and other points of view representative of the modern world. ''Between Two Worlds'' failed, and being dissatisfied with the structure of the commercial theatre and the critics who represent it in the newspapers, Mr. Rice announced his immediate retirement into other, more congenial fields.

POLITICAL PLAYS

The theatre of political principles was unusually active during the year. In addition to Mr. Rice's two plays, there was John Wexley's ''They Shall Not Die,'' based on the Scottsboro case and produced brilliantly by the Theatre Guild. At the Fourteenth Street Theatre, a new organization known as the Theatre Union, which had already produced ''Peace on Earth'' successfully, went on to ''Stevedore,'' by Paul Peters and George Sklar, which exploited the problem of race prejudice and labor unions. After that play had had a long run, the Theatre Union opened its autumn season with a play based on a mutiny in the Austrian Navy in 1918, ''Sailors of Cattaro,'' by Friedrich Wolf. On the basis of accomplishment the Theatre Union developed during the year into the most vigorous of new theatre organizations.

SOCIAL DRAMA

The most biting serious play of the autumn was ''The Children's Hour,'' by Lillian Hellman, who was new to the theatre. It was the bitter story of how two young headmistresses of a school for young girls were ruined by slanderous gossip about their personal relations. In the spring, Leopold Atlas's ''Wednesday's Child'' told a thoughful and deeply moving story of the plight of a boy whose parents were divorced. Although it aroused some admiration it was a failure.

RELIGIOUS DRAMA

O'Neill's ''Days Without End.'' —With ''Ah, Wilderness!'' already on the stage, Eugene O'Neill appeared once more as the author of a religious play, ''Days Without End.'' In order to express the conflicting points of view in his principal character's mind, Mr. O'Neill resorted to the use of masks, and Stanley Ridges and Earle Larimore played dual aspects of the same man. The play was a failure, owing chiefly to the inadequacy of Mr. O'Neill's writing.

Barry's ''The Joyous Season.''—Philip Barry was the author of another religious play, ''The Joyous Season,'' with Lillian Gish playing the part of a nun. This play likewise lacked exultation, and failed at the box office.

"ROLL, SWEET CHARIOT"

Having been away from the theatre for two or three seasons Paul Green returned with his most ambitious drama, ''Roll, Sweet Chariot,'' which was a symbolic portrait of the Negro race, played with an integrated musical score. It was the first of two attempts during the year to produce drama as a concerted form of music, dance, and stylized acting; it included some magnificant work, but it was a cruel failure.

COMEDY

For light American comedy there was A. E. Thomas's "No More Ladies;" Lawrence Riley's "Personal Appearance" and "Page Miss Glory," by Joseph Schrank and Philip Dunning. They were all written to familiar forms and were funny and generally popular.

FOREIGN PLAYS

"Within the Gates."—The most ambitious drama by a foreign playwright was Sean O'Casey's "Within the Gates." Having made an International reputation for "Juno and the Paycock" and "The Plough and the Stars," the finest of the current Irish dramatists set out to write a masque of Hyde Park in London, telling an impersonal and symbolic story by the use of dance, singing, music, expressionistic acting and scenery. It was greeted as "great" and as "rubbish" and stirred up the liveliest discussion the theatre had provoked for some time. Produced in mid-October, it was still drawing audiences at the close of the year.

"The Distaff Side."—John Van Druten's "The Distaff Side," with Dame Sybil Thorndike, was the most popular comedy by an English playwright. It was the story of a mother's relation to her children.

"The Wind and the Rain." — After having been popular in London Dr. Merton Hodges "The Wind and the Rain," came to New York with Frank Lawton in the leading part. It was a tender story of a young medical student's love for a young artist in Edinburgh, and it was well liked by American audiences.

"The Shining Hour." — Keith Winter's "The Shining Hour" was produced in New York before London saw it. Played by an English cast with Gladys Cooper in the leading part, it told a story of turbulence of spirit in the family of English country gentry, and it was uncommonly popular.

"A Sleeping Clergyman."—James Bridie's "A Sleeping Clergyman," which was popular in London, was produced here unsuccessfully by the Theatre Guild. It followed through two or three generations a blood inheritance that sometimes showed itself as licentiousness but became heroism at the end.

"Conversation Piece." — Noel Coward's only American production for the year was his "Conversation Piece," with Yvonne Printemps and Pierre Fresnay. Although London had liked it, it was too mannered for New York audiences.

"Richard of Bordeaux."—Dennis King produced in New York, Gordon Daviot's "Richard of Bordeaux" which had had a long run in London. It was a freshly-imagined drama of English history, and it was handsomely produced, but it did not repeat the London success.

GILBERT AND SULLIVAN

During the year the D'Oyly Carte Company from London played Gilbert and Sullivan repertory for three months, and the Abbey Theatre Company made another visit with its repertory, mostly familiar, of Irish plays. When the plans were made for the D'Oyly Carte visit some of those connected with the enterprise were not certain of a New York success. But their success was the chief one of the autumn season. They played to packed and appreciative houses night after night, and left New York when they were still in the midst of business.

Then they departed on tour in the United States, promising to return to New York in a year or two.

CIVIC REPERTORY

After an absence from New York of two years Eva Le Gallienne and her Civic Repertory Company appeared in an uptown theatre in Clemence Dane's new version of "L'Aiglon." Miss Le Gallienne played the part of the Eaglet to general admiration, and

Ethel Barrymore appeared as the Eaglet's mother. After "L'Aiglon" had run its course, Miss Le Gallienne returned to some of her old repertory and then departed for another tour.

MUSICAL SHOWS

Owing to the scarcity of money available for large and hazardous investments musical shows were comparatively scarce. But the Shuberts mounted two of the most successful—a version of "The Follies" which still bore the trade name of Ziegfeld, and an autumn revue entitled "Life Begins at 8.40." At the Centre Theatre in Rockefeller Centre, Max Gordon sponsored an imposing production of "The Great Waltz" which was mounted in a lavish, circus style. It was tremendously popular. Towards the close of the year the most popular musical show was "Anything Goes" by P. G. Wodehouse, Guy Bolton, Russel Crouse and Howard Lindsay, with music and lyrics by Cole Porter.

MOTION PICTURES

By Andre Sennwald

Motion Picture Reviewer, *The New York Times*

THE CRUSADE FOR CLEAN PICTURES

The most striking event in the American cinema during 1934, was the widespread public demand for the elimination of vulgarity on the screen, a campaign which enlisted millions of supporters and shook Hollywood to its foundations. The drive for pure films began inauspiciously in May when Father Daniel A. Lord, S.J., editor of *The Queen's Work*, St. Louis, issued crusading posters to several thousand Catholic high schools, colleges and parishes. Father Lord attacked the objectionable elements in "The Trumpet Blows," "Finishing School," "Glamour," "Riptide" and "George White's Scandals," and upbraided Irving Thalberg, in charge of production for Metro-Goldyn-Mayer, for producing films about "loose and immoral women" and for presenting his wife, Norma Shearer, in this type of photoplay. His posters added a warning line: "We advise strong guard over all pictures which feature Norma Shearer. They are doing more than almost any other type of picture to undermine the moral code and the producers' code."

Scoffed at in the beginning by the film producers on the West Coast, the movement gained astonishing momentum in a short space of time, enlisting the support of many prominent citizens and gaining valuable publicity in both lay and clerical publications. The cinema producers, fearful of an extended public boycott of the screen and sensing the possibility of a ruinous Federal censorship, described a hasty change of attitude, and went to great length to assure the purity advocates of their sympathy and their desire to cooperate.

The result of this public agitation against indecency was the formation of an internal censorship organization under Joseph I. Breen, of the Motion Picture Producers and Distributors of America. Scripts and stories had to be approved by this office before they entered production. Completed films could not be publicly released until Mr. Breen had approved their moral fitness and issued to their producers a purity seal, which was flashed on the screen each time the film was exhibited. The new films produced in the Autumn showed the influence of the Legion of Decency drives by a general improvement in the quality of narratives and a trend toward the unsophisticated type of picture represented by "Mrs. Wiggs of the Cabbage Patch," "A Girl of the Limberlost," "Anne of Green Gables" and "The Little Minister."

In December the Catholic Legion of Decency, still dissatisfied with the results of the campaign, issued a list of approved and disapproved pictures which had been drawn up by the Chicago Council of the Legion. Much dissatisfaction was expressed toward this particular listing, both by the laity and by Catholic churchmen themselves, because of the circumstances that most of the pictures named had already completed their showings in many parts of the country. As the year drew to a close, churchmen in the New York Archdiocese prepared to abandon the Chicago list in favor of a more up-to-date listing, but the agitation for clean motion pictures appeared to be as widespread and determined as ever.

THE NATURAL COLOR FILM

The champions of the natural color film, refreshed in spirit after their defeats of four and five years ago, began a new campaign to make color an integral element in the cinema. The spearhead of their attack was a new three-color process devised by technicolor engineers. Although no feature-length color films were released during 1934, several were in production at the close of the year, and the public had already been given an opportunity to view the results of the new process in experimental ventures. The most remarkable of these was the short film, ''La Cucaracha,'' which met with both public and critical approval. Walt Disney's ''Silly Symphonies'' were filmed in color and there were Technicolor sequences in two of the year's more important productions, ''The House of Rothschild'' and ''Kid Millions.''

FOREIGN FILMS

The British cinema, following its encouraging advances during 1933, achieved a new level of technical and artistic excellence during the year. Although England continued to lag behind Hollywood by a sizeable margin, London exported to American screens a number of excellent photoplays. The British cinema acquired prestige by sponsoring the release of Robert Flaherty's ''Man of Aran,'' the most beautifully photographed work of the year. Among the outstanding British films were ''Little Friend,'' ''Evensong,'' ''Catherine the Great,'' ''The Tell-Tale Heart'' and ''Power.''

Except for isolated photoplays the cinema in Europe proved to be negligible in its achievement. France offered American audiences two English-speaking editions of notable Gallic photoplays, ''The Battle'' and ''Don Quixote.'' Germany, except for ''Waltz Time in Vienna,'' found her cinema throttled by the repressive Nazi supervision, while Russia continued to express herself in Communist preachment.

NEWSREELS

The newsreels exhibited a growing vigor, intelligence and enterprise. Once, these photographic journals were content to picture the sort of trivial feature material which only finds its way into the back pages of the newspapers on dull days. Now the newsreels have carved out an important place for themselves as chroniclers of the world's events. In two notable cases during 1934, the *Morro Castle* disaster and the assassination of King Alexander of Yugoslavia, the journalists of the camera rose brilliantly to their opportunities. The films of the assassination represented one of the most amazing photographic exploits in the history of motion pictures. Capturing in permanent form a tragedy of international significance, they showed history in the act of spinning out her grisly tale.

The newsreel men proved during the year that they are ready when luck and a steady hand placed them in a position to record the drama of the crashing plane, the overturned racing car, the bullet of the assassin, the flare-up of murderous rioting in a stormy labor dispute. They were, in the best sense, newsreels—recorders of the passing scene. Hollywood studios provided the only disagreeable phase of the newsreel picture when, during Upton Sinclair's gubernatorial campaign in California, they manufactured anti-Sinclair propaganda and exhibited it in motion picture houses as authentic camera news.

SCREEN PERSONALITIES

While established performers slipped backwards, new personalities rose to public favor during the year. The most spectacular advance was that of the hitherto-unknown Shirley Temple, a talented and engaging infant. Her appearance in a brief episode during the course of one of the Spring photoplays, ''Stand Up and Cheer,'' brought her instant recognition despite the mediocrity of the film. She appeared thereafter as the principal performer of ''Little Miss Marker,'' ''Baby, Take a Bow,'' ''Now and Forever'' and ''Bright Eyes.'' By the end of the year she was recognized as perhaps the most popular performer in the contemporary American cinema. Myrna Loy, whose engaging talent for light comedy had hitherto been obscured because of her employers's insistence on presenting her in nightmarish melodrama, assumed a high place in the public affections. W. C. Fields became the most popular comedian of the day as the result of his work in ''Six of a Kind,'' ''You're Telling Me'' and ''The Old-Fashioned Way.'' Some of the other players who advanced in public favor were Charles Boyer, Elizabeth Bergner, Grace Moore, Tullio Carminati, William Powell, Anne Shirley, Robert Donat, Frankie Thomas, Fred Astaire and Ginger Rogers.

OUTSTANDING PICTURES

Although it would have been more reasonable to make a blanket list of the 40 outstanding pictures of the year, the rather foolish convention of selected ten photoplays as the best of the twelvemonth has been adhered to. This was *The New York Times* decalogue:

''It Happened One Night.''—Clark Gable and Claudette Colbert were the principals in this light comedy, which received almost universal commendation. In it Frank Capra, perhaps the most expert director in Hollywood, told a simple romantic story so perfectly that filmgoers who were unaware of the superb technical skill that went into its composition were none the less charmed by its wise and gracious humanity. Robert Riskin's screen play won high praise.

''The Thin Man.''—This screen version of Dashiell Hammett's novel established the team of William Powell and Myrna Loy as the most delightful duet of the day. Produced by the expert W. S. Van Dyke, it was also a superb specimen of film-making, a cynical and urbane screen comedy which set a high mark for technical craftsmanship. Murder mysteries on the screen are not noted for their ability to create mirth, but ''The Thin Man'' showed that homicide was not incompatible with deftness of humor.

''Man of Aran.''—Robert Flaherty, a superb camera man, produced this bare and uncompromising film in the great tradition of his ''Moana,'' ''Tabu'' and ''Nanook of the North.'' With the simplicity of a consummate photographic artist, Mr. Flaherty pictured the most fundamental of all themes, man's poor struggle to snatch a livelihood from a hostile environment. He showed, in a symphonic poem, how an Irish family on a desolate island in the Atlantic fought a long and bitter fight with the land and the sea for the privilege of life.

''The House of Rothschild.''—This screen drama of a great banking family was a distinguished historical film, presented against a vast and breathtaking eighteenth-century canvas and told with humor and dramatic excitement. Everyone involved in its manufacture, including Nunnally Johnson as writer, Alfred Werker as director and George Arliss as principal player, was entitled to the highest commendation.

''Our Daily Bread.''—King Vidor's drama of a cooperative farm for the unemployed was, despite certain technical flaws, a brilliant declaration of faith in the importance of the cinema as a social instrument. A one-man job of picture-making, it was written, directed, produced and financed by Mr. Vidor himself after several Hollywood studios had rejected the project as too revolutionary for the American screen.

''The Lost Patrol.''—This was a psychological drama of unusual interest. Based on a novel by Philip MacDonald, it told how a British patrol in the Mesopotamian desert during the War, cornered at a water hole by invisible Arab marksmen, suffered gradual mental and physical degeneration from the strain of waiting for an inevitable and unseen fate.

''The Battle.''—Filmed in France, this was the English-speaking edition of ''La Bataille,'' a notable French photoplay based on Claude Farrere's novel. Acted with extraordinary compassion and tragic force by Charles Boyer, it described how a Japanese nobleman obtains naval information from a British officer by using his wife as a shield, and afterward commits hara-kari to atone for his sin.

''The First World War.''—Not only an important and memorable documentary history of the World War but also a significant example of what expert editors can do with old newsreel film in the motion picture library. It was compiled with great skill by Truman Talley of the Fox Film Corporation and was distinguished by its bitterly ironic dialogue by Laurence Stallings.

''One Night of Love.''—In no other talking photoplay have the soaring notes of the upper musical registers been reproduced with such accuracy. Grace Moore was the star of this urbane musical film. Both in its humor and in its classic melody, ''One Night of Love'' achieved a high level of excellence, and its technical recording was so fine as to encourage Hollywood to consider the possibilities of opera on the screen.

''Catherine the Great.''—Elizabeth Bergner, one of the great modern-day actresses, was revealed for the first time to American audiences in this remarkable historical drama, which was notable not alone for its brilliance of production but also for its careful attention to the facts of history. Josef von Sternberg discussed the same material in ''The Scarlet Empress,'' with Marlene Dietrich, but his work fell far below ''Catherine the Great'' in achievement. The film was a British product, produced by Alexander Korda for London Films.

THE SCREEN AS PROPAGANDA

Among the interesting phenomena of the screen year was the increase in the employment of the screen for propaganda and social argument. The European cinema pleaded social causes in a variety of photoplays, but propaganda in unusual quantities was manufactured at home as well. The warmakers submitted to bitter assaults in ''The President Vanishes,'' ''Dealers in Death,'' ''War Is a Racket'' and ''The First World War.'' The Warner Brothers film ''Massacre'' made a vigorous attack upon the dishonesty of government officials in the supervision of Indian reservations. Another Warner film, ''Gentlemen Are Born,'' criticized American colleges for their failure to prepare students for the discouraging experiences that await them in a depression-ridden country. King Vidor's ''Our Daily Bread'' dramatized the subsistence homestead as a partial solution for the unemployment crisis, a solution suggested, incidentally, by President Roosevelt. ''The World in Revolt'' was a broad statement in pictorial lecture form of popular unrest as evidenced in the political upheavals since the World War.

The Nazi regime was stigmatized in two American-made pictures, ''Are We Civilized?'' and ''Hitler's Reign of Terror,'' the latter a newsreel indictment of the German dictatorship. Newsreels also were employed in ''Ernst Thaelmann, Fighter Against Fascism'' to arraign Hitler for the arrest of a prominent German communist whose confinement aroused widespread indignation among radicals. The understandably partisan German cinema defended the Brown Shirt cause in two films which were exhibited in the United States, ''S. A. Mann Brand,'' which attacked the German Communists and their alleged Muskovite confederates, and the patriotic *''Unsere Fahne Flattert uns voran.''* (''Our Banner Flies Before Us.'')

The Italians glorified the Mussolini regime and chanted the beauties of Fascism in ''Man of Courage,'' while the Russians performed a similar service for Lenin and the Soviet State in ''Three Songs About Lenin,'' which technically proved to be a film of unusual interest. The Russians continued to lead the way in the employment of political propaganda on the screen and there was no lessening in the American importation of Soviet photoplays defending the Stalin dictatorship and castigating its opponents.

NECROLOGY

The passing of the universally beloved Marie Dressler was the tragic event of the year in the American cinema. Among the other prominent film deaths were Dorothy Dell, Lilyan Tashman, Lew Cody, Lou Tellegen, Willard Mack, Russ Colombo and Lowell Sherman.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Academy of Arts and Letters, 633 West 155th St., New York City.

American Academy in Rome, 101 Park Ave., New York City.

American Ceramic Society, 2525 N. High St., Columbus, O.

American Federation of Arts, The Barr Bldg., Faragut Sq., Washington, D. C.

American Fine Arts Society, 215 W. 57th St., New York City.

American Institute of Architects, 522 Fifth Ave., New York City.

American Numismatic Society, 156th St. and Broadway, New York City.

American Scenic and Historic Preservation Society, 287 Convent Ave., New York City.

Archaeological Institute of America, New York University, University Heights, New York City.

Architectural League of New York, 115 E. 40th St., New York City.

Art Alliance of America, 65 E. 56th St., New York City.

Art Center, Inc., 65 E. 56th St., New York City.

Artists Guild, 480 Lexington Ave., New York City.

Fine Arts Federation of New York, 215 W. 57th St., New York City.

Graphic Arts Board of Trade, 291 Broadway, New York City.

Hispanic Society of America, the, 156th St., West of Broadway, New York City.

Municipal Art Society of New York, 119 E. 19th St., New York City.

National Academy of Design, 175 W. 109th St., New York City.

National Assn. of Women Painters and Sculptors, 42 W. 57th St., New York City.

National Institute of Arts and Letters, 633 W. 155th St., New York City.

National Sculpture Society, 115 E. 40th St., New York City.

New York Society of Architects, 101 Park Ave., New York City.

New York Society of Craftsmen, 65 E. 56th St., New York City.

Society of Illustrators, 65 E. 56th St., New York City.

Society of Independent Artists, Inc., 54 W. 74th Street, New York City.

DRAMA

American Society of Composers, Authors and Publishers, 1501 Broadway, New York City.

Drama League of America, Hotel Barbizon Plaza, 58th St. and 6th Ave., New York City.

Dramatist Guild, 9 East 38th St., New York City.

English Folk Dance Society, 159 E. 33rd St., New York City.

Episcopal Actors Guild, 1 E. 29th St., New York City.

Federation of Motion Picture Industry of America, 1440 Broadway, New York City.

International Theatrical Play Bureau, 223 W. 46th St., New York City.

Motion Picture Directory Co., 1071 Sixth Ave., New York City.

Motion Picture Producers and Distributors of America, Inc., 28 W. 44th Street, New York City.

THEATRE GUILD, INC., 243 W. 52nd St., New York City.

MUSIC

AMERICAN GUILD OF ORGANISTS, 217 Broadway, New York City.

CANTORS REGISTRY, 955 St. Marks Place, New York City.

CHORUS EQUITY ASSN. OF AMERICA, 110 W. 47th St., New York City.

GRAND OPERA CHORAL ALLIANCE, 678 Eighth Ave., New York City.

JEWISH THEATRICAL GUILD, 1560 Broadway, New York City.

NATIONAL BUREAU FOR THE ADVANCEMENT OF MUSIC, 45 W. 45th St., New York City.

NATIONAL MUSIC LEAGUE, 113 W. 57th St., New York City.

OPERA AND DRAMA SOCIETY, 1730 Broadway, New York City.

ORATORIO SOCIETY OF NEW YORK, 113 W. 57th St., New York City.

PHILHARMONIC-SYMPHONY SOCIETY OF NEW YORK, 113 W. 57th St., New York City.

DIVISION XXVII

EDUCATION

ELEMENTARY EDUCATION

By F. C. Borgeson

Associate Professor, New York University

COMMANDING PROBLEMS

The majority, if not all, the frontier problems confronting elementary education as reported in The American Year Book for 1933 (p. 954) continue in varying degrees as paramount this year. Retrenchment because of economic pressure is apparently not as acute though it remains severe. The relations of the school to its community must be closer and more adequately established. This involves a better understanding of community life by school people, a more intelligent interpretation of the school to the community, participation in community activities by the teaching staff, school-community centers, adult education and leisure programs fostered by the public school, and a better integration of school and nonschool educational agencies and programs.

Other serious problems in elementary education that must have satisfactory solutions before genuine progress is attained are such as: discrimination against elementary teachers as compared to secondary teachers in salary schedules, unreasonably large classes, general failure of supervisors to recognize and apply the findings of significant research, marking and promotion reform, the optimum school and class organization, development of adequate measures for evaluating the results of "progressive procedures" and character building programs, consolidation of small districts, peace education and propaganda, and the extent to which controversial issues shall enter the elementary curriculum.

THE DEPRESSION AND THE SCHOOLS

The Joint Commission on the Emergency in Education under the chairmanship of Dr. John K. Norton continues its splendid efforts to stem the tide of educational retrenchment. The utter collapse of the public school program in many large areas has been prevented largely because of the unceasing efforts of this commission. This emergency body is encouraged by the prospects of a slight, but nevertheless definite, increase in educational appropriations for 1935. Unless the anticipated upturn is markedly accelerated, however, it will require from 10 to 20 years to regain the pre-depression level of expenditures for public education. While many states are preparing to restore certain educational services withdrawn since 1930, others, particularly in draught areas, have experienced during the current year even with large emergency appropriations from the Federal Government the most severe curtailment of the educational program during the entire depression period.

Bright spots that can be envisaged during the period of restoration immediately before us are the possibilities of the reorganization of units of school administration, the reconstruction of the school program to meet the changing social needs of modern life, and the revision of systems of school finance. Such programs are being advocated by the National Education Association.

PARENT EDUCATION

More than one-half of the state departments of education now have, at least temporarily, specialists in parent education who are responsible for the parent education aspects of the emergency education programs for adults in the respective states. This important educational service has been made possible through the cooperation of the National Council of Parent Education and the Federal Emergency Relief Administration.

EDUCATION IN HUMAN RELATIONS

The Service Bureau for Education in Human Relations, located at 507 West 121st Street, New York City, and advised by a National Committee of educators, has been created to develop in children and adults a more sympathetic understanding of other cultural and racial groups. The Service Bureau provides on a purely educational basis a clearing house and systematic guidance for schools and community leaders in this field. Experimental and demonstration programs in schools are sponsored through the use of the assembly, home room and class discussions, and informal social and intellectual intercourse with leading personalities of selected American minority groups.

THE TREND IN BETTER ELEMENTARY SCHOOL EDUCATION

In a consideration of trends, a word description of events of a single year would be highly inappropriate. The reader is again referred to the report on Elementary Education in The American Year Book for 1933 (p. 957). The important work of the Committee on Informal Teaching of the New York State Association of Elementary School Principals is being carried forward by another committee that is dealing with the knotty problem of scheduling the informalized program during the school day and week. Small beginnings are under way to build the elementary school curriculum on current social life, freed from the restrictions of artificial subject matter compartments. Gradually the school principals and supervisors are seeing the advantage of genuine teacher and pupil participation in a truly democratized school administration. A splendid illustration is that under the direction of Julia Hahn, Supervising Principal, Third Division, Washington, D. C. and reported by Miss Hahn in *Educational Method* for December, under the title, ''Cooperative Supervision in a Changing Social Order.''

CHARACTER EDUCATION

The Association of General Supervisors of Massachusetts has planned a three-year cooperative program of experimentation in character education. Some of the suggested possibilities for experimentation deal with participation by children in school control, self-chosen work, out-of-school activities, junior civic offenses, vacation activities, the assembly, individual diagnosis, and classroom procedures.

RADIO AND EDUCATION

An increasing number of worthy educational programs is being broadcast on state and national weekly hook-ups. The National Advisory Council on Radio in Education sponsors programs on public health, ''Trends in Government'' (in cooperation with the Political Science Association and the National Municipal League), and a series of discussions on the need for revising our economic principles in the light of the rapid changes in our industrial life (in cooperation with the League for Industrial Democracy). The invaluable National Broadcasting Corporation Music Appreciation Hour continues with its four series of graded programs for children from eight to 18. The American Federation of Arts in cooperation with the Museum of Modern Art sponsored its second series of programs on ''Art-America''. The National Congress of Parents and Teachers, in cooperation with the University of Chicago, broadcasts programs of special interest and value to parents and teachers.

CADET TEACHING

A movement under way containing both desirable and dangerous elements is the practice of selected schools and school systems taking on college graduates and others who have completed their pre-service period of professional training as cadet teachers for one or two years. The cadet serves without pay for the privilege of valuable experience gained as an assistant to a regular classroom teacher. Of course the cadet has already had from one-half to one year of such experience as a student teacher under the supervision of the teacher-training institution. This movement is desirable in that it gives the cadet, otherwise unemployed, invaluable teaching experience provided she is fortunate in the teacher to whom she is assigned. It is a dangerous factor if it results in larger and larger classes, and in fewer teachers on the payroll.

NATIONAL EDUCATION ASSOCIATION SECRETARY

One of the most important appointments in years came in the selection of Williard E. Givens, former superintendent of schools, Oakland, Calif. to succeed James W. Crabtree as Secretary of the N. E. A. No other single individual in the country has the opportunity of influencing educational practice as does the Secretary. Members of the N. E. A. and others actively interested in education are delighted with the wise choice made by the Board of Trustees of the National Education Association. A flood of tributes continue to pour into the N. E. A. headquarters in praise of the superior leadership rendered the profession by Mr. Crabtree who retired after 17 fruitful years of service as Secretary.

SIGNIFICANT PUBLICATIONS

Two large volumes of the proceedings of the First International Congress on Mental Hygiene, held in Washington in 1930, are now available, and present a significant picture of the mental hygiene movement throughout the world. Significant yearbooks that touch upon the problems of elementary education are: *The Activity Movement,* thirty-third yearbook, National Society for the Study of Education (*The Progressive Education Magazine* for October contains the papers which were read at the time the yearbook was presented to the Society); *Scientific Method in Supervision Programs,* seventh yearbook, Department of Supervisors and Directors of Instruction, National Education Association; *Aids to Teaching in the Elementary School,* thirteenth yearbook of the Department of Elementary School Principals, National Education Association; *The Teacher and the Public; A Handbook of Interpretation for Teachers,* eighth yearbook of the Department of Classroom Teachers, National Education Association; The yearbooks of certain state associations, *e.g.,* Elementary School Principals Association in Michigan and New York.

The comprehensive program of research on the effect of motion pictures on the education of youth sponsored by the Payne Fund which was made at the request of the Motion Picture Research Council, reports twelve studies published in nine volumes under the general caption, *Motion Pictures and Youth.* A rather complete summary of the findings is contained in the first volume of the series. A compact body of factual data, accompanied with interpretations and bibliography is found in a study entitled, ''Motion Pictures in Education in the United States'', which was originally prepared by the Office of Education for an Instructional Conference in Rome. A syllabus for a teacher training course utilizing educational talking pictures entitled ''Modern Trends in Education'' has been edited by the Educational Research Staff of Erpi Pictures Consultants.

A strikingly accurate picture of the immediate situation and problem in American education is given by Charles H. Judd in his portion of the report of former President Hoover's Commission on Social Trends. Dr. Judd's statement is now available in separate book form and entitled *Education and Social Progress,* (Harcourt, Brace). A disturbing and challenging pamphlet is *Schools and the Crisis* by Rex David, published by International Pamphlets, which enumerates in bold fashion what the economic upheaval has done to the public education program.

Outstanding among the educational publications of the year are the reports of the Commission on Social Studies of the American Historical Association (Scribners). After five year's study, a commission of national renown seemed to have great difficulty in agreeing on a comprehensive program. Yet it does present the most significant analysis yet made of the place of the social studies in education. A majority of the commission takes the stand that social, economic, and political organization is becoming ever more integrated and interdependent and that there is "a notable waning of the once widespread popular faith in economic individualism". They further hold that American education has a clear responsibility to prepare for this change. A greater function for the social studies than heretofore recognized is premised. In addition to their present function they must also assist in shaping the philosophy and purpose of education and to furnish leaders to help bring about the ideal organization.

An abbreviated but invaluable summary of the present crisis for busy educators is that pictured in the *Research Bulletin* of the National Education Association for November. The entire issue deals with "Modern Social and Educational Trends" by giving the latest salient fact available in seventeen areas of social, economic, and political life and suggesting the educational implications of each.

In 1929 and 1931, the New York State Department of Education published two significant bulletins entitled, *Cardinal Objectives in Elementary Education.* Another bulletin in the same series was published in 1934 which reports "Trends in Unit Teaching". These bulletins give one of the best statements yet in print on the function of the public elementary school. They then proceed to objectify how that function can best be realized through the unit of work activity program. In connection with these bulletins the State Department, through the cooperation of committees of the New York State Association of Elementary School Principals, is now publishing a series of pamphlets known as the Informal Teaching Series. The titles of the first six of these circulars are as follows; A Bibliography for Activity Units, Materials and Supplies in Unit Teaching, The Use of Textbooks, Community and School Relationships, Cooperative Room Activities, and The Development of School and Community Relationships through an Activity Program. An interesting characteristic of the circular is a definite attempt to characterize the formal, less formal, and informal practices under a definite type of situation.

Reference was made in THE AMERICAN YEAR BOOK for 1933 (p. 955) of a significant but unpublished study which was a first step in the evaluation of the results of progressive education. A portion of the findings are now available in Dr. Frederick Pistor's article, "Measuring Some Subtle Values of Progressive Education", in *Educational Method* for December.

A significant experimental study is reported in a University of Chicago Press publication prepared by William S. Gray bearing the title, *Improving Instruction in Reading.* It is an intensive study of the problems involved in applying the results of research to improve both the content and methods of teaching reading. The monograph considers ways and means of reorganizing and improving the teaching of reading in harmony with the results of scientific research. It reports the difficulties that are encountered and the results that follow vigorous efforts to improve teaching.

Several studies are making their appearance in the field of making more adequate provision for superior and gifted children. One illustration of this is that by J. Edgar Dransfield, published by the Bureau of Publications, Teachers College, Columbia University, called *Administration of Enrichment to Superior Children in the Typical Classroom.* This study demonstrates promising techniques that might be employed by the regular classroom teacher to make education really mean something for the superior child found in the regular classroom.

SECONDARY EDUCATION

By Philip W. L. Cox

Professor, New York University

GENERAL

Enrollment.—Public high school education during 1934 has manifested no dramatic or unexpected developments. The increase of enrollment continues but at a less spectacular rate. In Pennsylvania, for example, it amounted to 4.3 per cent in 1933-34 over 1932-33. To a considerable degree such an increase may be accounted for by the return of postgraduates for continued high school membership.

Curriculum.—Within the curriculum and staff of the high school, a distinctly conservative, almost timid, trend continues. Many activity and expressive subjects and their special teachers—art, music, home economics, industrial arts, physical education, journalism, and dramatics—had been dropped from the schools during the previous two or three years, so that academic subjects and academic teachers now dominate the school's program and faculty to a greater degree than they have for the past ten or fifteen years. Even such necessary educational opportunities as have been included in the student activities, the guidance and measurement programs, and remedial opportunities both for health and for the fundamental tools of learning have been curtailed in spite of the increasing need for such services under conditions of even greater numbers of non-academically inclined pupils.

Public apathy toward the high school continues and is supplemented by fearful nationalists and conservatives who threaten teachers, who permit the discussion of socially significant questions in their classrooms, with dismissal on charges of disloyalty. Moreover, the economic conditions of adults and of municipalities have been such that uncertainty has been rife. This panicky state of mind has expressed itself in a critical but not always intelligent scrutiny of every public institution supported by locally levied public funds.

GOVERNMENT AID FOR SCHOOLS

Code Operation.—The distressing picture of closed or seriously curtailed public high schools and unemployed or seriously underpaid teachers, is slightly relieved by the cautious efforts of Federal agencies to subsidize, encourage, and use wisely such distinctly state and local social instruments as the public schools. In 1933, the NRA codes largely anticipated the Child Labor Amendment which it may be hoped will soon be ratified and become a part of the Constitution; these codes by forbidding the employment of young children in factories and shops practically passed them into the hands of schools, thereby greatly increasing their burden.

Help of Federal Agencies.—Without direct reference to this anticipated effect, several Federal agencies have interpreted the acts under which they were established to grant direct or indirect but quite insufficient help to the public school or to relieve it of parts of its burden. Thus the Citizens Conservation Corps (Emergency Conservation Work) has provided employment and education for large numbers of adolescents who might otherwise have become responsibilities of local communities and their high schools. The Federal Emergency Relief Administration engages unemployed teachers to teach in rural schools that would otherwise be closed, to provide adult education and vocational education, and to teach the physically handicapped. The Federal Subsistence Homestead Corporation and the Tennessee Valley Authority have provided schools in connection with their developments. The Agricultural Adjustment Act calls upon and subsidizes agricultural, vocational, educational centers to assist in the crop control program. School plants, the construction and repair of which might otherwise have further restricted educational budgets of local communities, have been constructed or improved both by grants and by loans from the Public Works Administration and the Civil Works Administration. Finally, the Reconstruction Finance Corporation has been empowered to lend money to school districts to pay back-salaries of teachers up to June 1934.

State Relief.—State governments too are tardily coming to the relief of local school systems by increasing their allotments either in the form of loans or grants. New Jersey, Pennsylvania, Indiana, Michigan, North Dakota, California, Missouri, Oklahoma, Oregon, Montana, and Idaho had all taken positive action by March, 1934, to increase funds available for schools; special liquor taxes, sales taxes, and bond issues have furnished the additional funds. Legislation is pending in Virginia, Rhode Island, West Virginia, and doubtless in other states to assist school districts to maintain at least a minimum program. It may, therefore, be expected that the grave conditions of last winter are now somewhat relieved.

NEW EDUCATIONAL VENTURES

Youth Movements and Aims.—If by secondary education we mean the undertakings in connection with which American adolescent youth is growing in knowledge and power, we must look elsewhere than within the programs of study and the administration of public and private high schools in the year, 1934. Fortunately we shall find outside the school, and supplementary to what we generally conceive the school to be, numerous protective measures and constructive proposals for the education of adolescent youths. There are a dozen youth movements organized around rather specific aims—to oppose fascism or to promote it, to oppose war or to rally youth to nationalism, to promote social-economic reforms or to maintain the *status quo*. There are forums and adult education and recreational centers in which adolescents are vigorous participants. The reports of the Payne Fund for the study of motion pictures and their influence on the knowledge and attitude of youth has led to agitation by religious and civic groups urging their reform.

Extension of Curriculum Opportunities.—Space permits the mere mention of a number of other matters that are of great significance for the forward movement of secondary education. There has developed an extended use of correspondence courses, of radio lectures, and sound motion pictures as methods of extending and vitalizing the curriculum opportunities of secondary schools. Under the fostering permission of the North Central Association of Colleges and Secondary Schools, experiments are being carried through or projected at Tulsa, Okla.; Kansas City, Mo.; Gary, Ind., looking to making the secondary school a more effective instrument. The opening of the Benjamin Franklin Community High School in the Italian, Spanish, Jewish, and Slavic section of Harlem, New York City, is a milestone. This school is in session daily from 8.00 a.m. to 10.00 p.m. serving every possible need for education and recreation for the adolescents and their families.

Revision of Standards.—The North Central Association of Colleges and Secondary Schools is engaged in revising the standards for accrediting colleges and secondary schools. Qualitative and directive rather than quantitative and formal standards are sought.

Entrance Requirements.—The New York State Department of Education has radically modified and liberalized the requirements for the State high school diploma. Three conservative women's colleges, Smith, Holyoke, and Wellesley have abandoned the requirement of Latin for admittance. Dartmouth no longer prescribes any subject for admission. Other colleges which had already modified their requirements formally, are developing adequate administrative measures for attracting and selecting promising candidates eligible under the new conditions. Much of the advance in this coordination must be credited to the Progressive Education Association's Committee on the Relation of School and College.

High School Teaching Requirements. — In several eastern states, notably New York and New Jersey, there have been issued new and improved requirements for high school teaching certificates. While strengthening the demand for adequate professional preparation, the stated requirements allow more freedom for institutions and for candidates. State teachers colleges and university schools of education are modifying their curricula and courses of study to take advantage of their new freedom from formal restrictions.

Objectives and Practices.—The preliminary report of the Committee on Objectives of the Department of Secondary School Principals of the National Education Association has been issued. There has been organized a National Council of Business Education which is expected to influence the policies and practices in this area of secondary education. The Progressive Education Association Commission on the Curriculum is carrying on vigorous and challenging experimentation at the Dalton School and elsewhere which will doubtless have very significant results for the modification of secondary school practices.

REORIENTATION OF SOCIAL STUDIES

The outstanding contribution to secondary school education for 1934 is probably the publication of the final volume of the *Commission on the American History Association to Investigate the Social Studies.* In this volume the Committee sets forth a frame of reference and recommendations for content, method, and administration that bids fair to serve as a basis for the reorientation not only of the social studies in secondary schools but also the general purposes and procedures of the high school as a social institution. Mention must be included of the publication of a new and challenging educational magazine, *The Social Frontier.* Its appearance comes at a time of pause and perhaps of discouragement. It is an opening, however, of the will which a potentially very significant body of educators seeks to apply towards making secondary education a powerful instrument for bringing about the heralded ''new day'' by making of the high school a universal ''peoples' college'' and thereby preparing a large part of the generation now in their teens and twenties for the world that may even now be emerging.

COLLEGIATE EDUCATION

By J. O. Creager

Professor, New York University

SELF-CRITICISM

Year by year the colleges and universities are coming to be more critical of their own practices and more disposed to experiment with new ones. It will be the chief purpose of this report to deal briefly with a few of the tendencies toward reform that are manifested in these institutions.

There has been in recent years a veritable deluge of criticism directed against the colleges and universities. This great volume of material has been subjected to study and its chief characteristics set forth in an article by Dr. Eells of Stanford University (*Journal of Higher Education,* April, 1934). Students, alumni, the general public, and faculty members, themselves, participated in these articles, many of which are highly condemnatory and doubtless much of this criticism is unjust. But where there is so much smoke it is suspected there must be some fire. Furthermore these institutions have turned self-critical and for the past several years have been addressing their efforts to a reform of their practices. These reform measures have had to do with aims, methods of support, curricula, with teaching method, and with administrative procedure. Out of a long period of external criticism and self criticism has emerged the clear and insistent demand for a philosophy for higher education.

THE QUEST FOR A PHILOSOPHY

The search for guiding principles to govern practices in colleges and universities has been unusually persistent within the past year or two. This is evidenced by the current books, articles and official publications, a few of which are *The Obligation of the Universities to the Social Order* (N. Y. Univ. Press, 1933); *The State & Higher Educiation—Bulletin* (Carnegie Foundation, 1933); *Economy in Higher Education—Bulletin* (Carnegie Foundation, 1933); *Education For a Democracy* Johnston, Univ. of Minnesota Press, 1934), and *The Universities in a Changing World* (Oxford Univ. Press, 1933). Critical opinion insists that the universities can no longer rest their claims upon traditions: that they must face the future rather than rest upon the glories of the past. Some of the questions that confront them are:—What is the purpose of the Arts College in our American System. What should be the limit for free, tax-supported, higher education? What is the responsibility of these higher institutions to the state and to society at large? These and many other questions are being seriously considered by many college and university faculties.

NEW STATE POLICIES OF CONTROL

Closely akin to the attempt to formulate a philosophy of objectives for higher education is the recent tendency to organize centralized systems of control for higher educational institutions within states. Notable instances of this tendency are to be found in Oregon, Georgia, North Carolina, Mississippi, and North Dakota. Fourteen states, in all, have taken steps toward partial or complete unification of their offerings (*The State & Higher Education*). This, it may be said, is a rather belated response to the survey movement in higher education initiated by Philander P. Claxton, U. S. Commissioner of Education as early as 1912. Such a reorganization of institutions within a state greatly stimulates the study of aims and objectives not only for the separate institutions concerned but among divisions, schools and colleges within the same institution. This kind of study has increased greatly during the year 1934. Financial stringency has also added a stimulus to this same quest for purposes because of the hope of reducing expenditures through the elimination of overlapping of curricula, and consequent duplication of effort.

CURRICULUM REFORM

Dr. Henry Suzzallo showed, a good many years ago, in his thesis study of the elementary school curriculum that it had evolved largely through the influence of certain social factors, rather than having been the product of conscious study by educators. This is no doubt the case also for the traditional college curriculum. But the numerous instances of deliberate curriculum reform that has taken place in universities and colleges within the past few years indicate that a conscious philosophy of higher education is in process of formation. The past year has run a steady out-put of articles and announcements, dealing with curriculum innovations. Some of the chief tendencies characterizing such changes are: (a) the movement toward unification of subject matter into larger units; (b) the reduction in the number of required courses both for admission and graduation; (c) the selection of new content material in terms of modern problems; (d) the attempt to build new curricula in terms of consciously chosen aims and objectives; (e) the tendency to give recognition to an evolution that has already taken place—what Wilkins calls the bisection of the 4 year arts college; (f) the trend toward greater flexibility in order to meet individual needs; (g) small, though significant beginnings toward systematic curriculum analyses. There is also a real issue at stake between the project school of curriculum reformers and those who would hold to the traditional subjects rather than projects. In a sense a course in the study of problems of contemporary civilization becomes a project course. In less degree this is also true of certain forms of honors work in college. Within the year a number of articles have appeared describing such interesting curricular innovations as are under way at the University of Minnesota in its Junior College, the first two years at the University of Chicago and in a number of other institutions. Probably the most insistent note being sounded is the urgent demand that education at the college level be made more dynamic; that greater emphasis be given to the study of materials that deal with present economic and social problems.

THE TEACHING PROBLEM IN COLLEGE

For the past several years there has been considerable discussion of the improvement of teaching in colleges and universities. Much of the terrible avalanche of criticism being hurled against the colleges was aimed at the college professor as an instructor. The question arose:—"could he be improved?" Official communications from different associations of colleges and universities were addressed to the graduate schools, asking them to give attention to the matter. Naturally the issue turned upon whether or not courses in Education could be of any avail. In 1933 the American Association of University Professors made an extensive study of the opinion of college teachers relative to the matter. The results of this study were published in a *Bulletin of the American Association of University Professors* (IX, 3, "Required Courses in Education," March, 1933). In general it may be said that the report of this body shows little enthusiasm for courses in education as means of improving college and university teachers: though strangely enough these institutions show no tendency to cease offering such courses for teachers in elementary and secondary schools. A mere study of opinion where the opinion was fairly predictable in advance has little value. There has, however, been in progress for the last few years a good deal of direct experimentation with different methods of college teaching. In such experimentation the lecture method has been compared by means of controlled procedure with other methods, such as the discussion method, the project method, etc. This type of experimentation has been carried on chiefly under the leadership of professors of education though often in cooperation with specialists in academic subject matter. Probably the best single volume setting forth the results of such experimentation comes from the Ohio State University Press (Tyler, *Service Studies in Higher Education*).

This method of attack in the attempt to deal with the teaching problem in colleges appears to have much promise. As now carried on at a number of institutions, it secures cooperation between men who teach Education and subject matter specialists, in the solution of a problem which is the concern of both. It stimulates the subject matter specialist in improving his own teaching and is thus the best form of professional training. It obviously tends also to encourage the study of Education and give greater concern to the needs and capacities of the student as contrasted to the amassing of mere subject-matter scholarship, desirable as that may be. It also provides a new type of research for all college teachers as well as for members of the staff who may wish to study advisory and administrative problems. Thus, a valuable preliminary training may be afforded younger members of a staff who subsequently may wish to seek administrative positions. In a recent book (*Problems of Education in the United States*), Dr. Judd (University of Chicago) says: ''Sooner or later the presidency will have to attract, as it has in a few cases recently, men who will make the study of educational administration a specialty.''

THE DEMOCRATIZING TENDENCY

Historically speaking it would seem that colleges and universities are now confronted with the extension upward from the public school system of the popularizing or democratizing tendency in education. This expression of our democratic social order may be said to have run its course in the schools below, and now, through the instrumentality of the junior college it has reached the college and university level. The junior college and its recent rapid growth is perhaps the best single piece of evidence that this is true. Other symptoms of this tendency may be found in the reorganization going on within universities and colleges themselves, as well as in the entire movement in the field of adult education.

THE JUNIOR COLLEGE MOVEMENT

The bearing of the junior college movement upon the reorganization of higher education may seem obvious to the educational specialists. But it is not so to the layman or to men working in the academic field. In 1900 there were 27 junior colleges, all private. In 1910, there were 55—3 public, 52 private; in 1920, 40 public, 125 private; in 1930, 162 public, 268 private. In November, 1932, there were 525 junior colleges, of which 214 were public and 311 private. But the total enrollment of the public junior colleges was more than double that of the private. The present trend clearly indicates the rapid extension of our public school system to include two more years of free, tax-supported education. Within 50 years, 1880 to 1930, enrollment in high school advanced from 3% of boys and girls between 14 and 17 years of age in the nation to more than 46%. With present indications as to employment a similar increase for the years 18 to 20 may be expected.

INFLUENCE OF THE JUNIOR COLLEGE ON HIGHER EDUCATION

That the junior college is destined to affect greatly the practices in 4-year colleges and universities no informed person can doubt. First of all it seems destined to bring about a reorganization of higher education. Just what units will result and by what terms they will be designated cannot be predicted. But it is already apparent that the first two years of college are being thought of as a unit with definite aims and functions of its own and curricula are being constructed in terms of this viewpoint. It is likewise evident that admission policies, as well as advisement and guidance practices after admission, are being modified to meet the new view of the needs of under-classmen. As to whether these years shall be though of as ''secondary,'' ''collegiate'' or ''higher,'' time alone can determine. It is analogous to the discussion we had years ago as to whether the 8th, 9th, and 10th grades should be called an intermediate or a junior high school and as to whether it was elementary or secondary. The program proves to be more significant than the nomenclature.

That this new unit is furthermore destined to place new emphasis upon the importance of good teaching during the first two college years is becoming more and more apparent. Its faculty will for the most part not be made up of persons with large illusions about becoming research specialists or eminent authorities in special fields; they will be chiefly concerned with the guidance and instruction of youth. It is obvious that professional preparation will in due time be expected of all such persons and this at once raises the question of similar preparation for the college and university instructor. In fact this question actually arose in the recent survey of education in California.

STANDARDIZING PRACTICES

The year 1934 has witnessed a definite revision of policy as to the standardizing of higher educational institutions. In general it may be said that the change of emphasis is from quantitative to qualitative criteria as a means of standardization. Under

CLASSIFICATION OF INSTITUTIONS OF HIGHER EDUCATION[1]

Control	Type	Colleges and Universities	Independent Professional Schools	Teachers Colleges	Normal Schools	Junior Colleges	Totals
State	Men	6	8	..	..	2	16
	Women	8	0	9	3	..	20
	Coed	90	8	134	47	62	341
	Totals	104	16	143	50	64	377
Municipal or District	Men	1	..	..	1	..	2
	Women	1	..	2	5	..	8
	Coed	10	..	4	7	88	109
	Totals	12	..	6	13	88	119
Private	Men	18	18	..	..	9	45
	Women	30	3	2	22	31	88
	Coed	81	69	7	6	18	181
	Totals	129	90	9	28	58	314
Denominational (Protestant)	Men	23	43	..	1	5	72
	Women	34	..	1	..	23	58
	Coed	234	33	..	4	84	355
	Totals	291	76	1	5	112	485
Roman Catholic	Men	50	20	..	..	8	78
	Women	58	..	..	1	17	76
	Coed	10	1	1	..	2	14
	Totals	118	21	1	1	27	168
Grand Totals	Men	98	89	..	2	24	213
	Women	131	3	14	31	71	250
	Coed	425	111	146	64	254	1,000
	Totals	654	203	160	97	349	1,463

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[1] Walter J. Greenleaf, *Journal of Higher Education*, Feb., 1934, p. 64.

the new plan institutions will be reviewed more with reference to the degree of success with which they accomplish, in terms of student achievement, the purposes which the institution sets for itself. Institutions will therefore be accredited in terms of their aims and objectives. These qualitative factors in accreditment do not mean the abandonment of all quantitative standards. Rather are they to be thought of as important additions to such standards. They are, at any rate, further indication that higher education has become self-critical and is seeking to find means for the more accurate appraisal of its practices. Evidence that exclusively quantitative standards are inadequate has been collecting for some time in the various experiments carried on at Stephen's College, Missouri, the University of Chicago and elsewhere in which privilege to experiment with qualitative procedures had to be sought from the standardizing association as a special dispensation.

DATA ON HIGHER EDUCATION IN 1934*

Number and Distribution of Institutions. — Training above that of high-school grade is being offered by 1,463 institutions of all types. One thousand are coeducational, 213 are men's colleges, and 250 are women's colleges. 902 are east of the Mississippi, 556 are west of the Mississippi, and 5 are in outlying parts of the United States. Only three states (Delaware, Nevada, and Wyoming) have fewer than 5 colleges; over a fourth are located in 5 states: Pennsylvania (97 colleges), New York (87), California (86), Texas (81), and Illinois (78). Thirty-four per cent are tax-supported, 21 per cent are privately controlled, 33 per cent* are in some degree supported by Protestant church bodies, and 12 per cent are under Roman Catholic control.

Colleges and Universities.—In this group are 654 institutions, all coeducational except 98 colleges for men and 131 for women.

Independent Professional and Technical Schools.—In this group are 203 institutions: 3 are for women—Simmons College (Boston), Portia Law School (Boston), and Woman's Medical College (Philadelphia); 89 are men's colleges; and 111 are coeducational. Nearly half (91) are theological seminaries of which 30 are coeducational.

Teachers' Colleges and Normal Schools. — There are 160 teachers' colleges, 143 controlled by states, 6 by cities, 9 by private agencies, and 2 by churches. There are 97 normal schools, 50 controlled by states, 13 by cities, 28 by private agencies, and 6 by churches.

Negro Colleges.—There are 80 institutions of higher education for Negroes; 45 are colleges or universities, 3 are independent professional schools, 12 are teachers' colleges, 9 are normal schools, and 11 are junior colleges.

Junior Colleges.—There are junior colleges listed in the Directors of the U. S. Office of Education all of which are coeducational except 24 for men and 71 for women; 112 are maintained by Protestant denominations, 64 by states, 88 by cities or districts, 58 by private enterprise, and 27 by the Roman Catholic Church. (Some directories list more than 100 additional junior colleges which have small enrollments or one-year curricula only.)

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* By Walter J. Greenleaf, *Journal of Higher Education,* (U. S. Office of Education, Feb., 1934, 61-65).

EDUCATION FOR THE PROFESSIONS

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In this article it has been possible to present only a brief report of some of the significant developments in a few of the professions in the year, 1934.*

LEGAL EDUCATION

National Associations.—Following the note of ''cooperation'' and ''coordination'' struck during the preceding year, ''The Lawyer's Service to the General Public'' was discussed in an interesting series of papers at the annual meeting of the Association of American Law Schools held in Chicago in December, 1933. In August, 1934, at the meeting of the American Bar Association in Milwaukee, the Section of Legal Education and the Conference of Bar Association Delegates held a joint session which included, among its speakers, the President of the American Medical Association. The National Conference of Bar Examiners, through its periodical, *The Bar Examiner,* continues to be a valuable vehicle of inter-communication between practitioner members of state boards and law school teachers.

Bar Admission Requirements. — During the year, 22 states (the same number, by revised figures, as during the preceding year) made changes in their rules or laws affecting admission to the bar. Among the developments were increased requirements of general education in Albama, Kansas, Massachusetts, Missouri, Ohio, Oregon, South Carolina, Texas and Virginia, and the lengthening of the period of law study in Missouri, Pennsylvania, Tennessee, and Texas. In January, 1934, New Mexico became the first state to comply in full with the recommendations of the American Bar Association as to these and other features of a bar admission system. The total number of jurisdictions that, in addition to a bar examination, require all applicants to have secured a specified amount of general education, and, following this, to study law during a specified number of years, is now 23 out of a total of 49 (48 states and the District of Columbia). Of these 23, 17 set a standard of general education as high as the two years of college recommended by the American Bar Association. Four additional states require something in the nature of two years of college, but not necessarily, in the case of all applicants, before the beginning of the law study. This enumeration does not include three states which have announced requirements not yet in effect.

Among important changes outside the scope of the American Bar Association recommendations were a new development in provisions requiring registration at the beginning of the prescribed period of law study (Massachusetts, Missouri, Pennsylvania, Texas), continuing supervision of law students (Texas), special preparation in local statutes for attorneys already admitted elsewhere (Texas) investigation of the character of such applicants by the National Conference of Bar Examiners (California, Delaware), and establishment, in a rudimentary form, of the much discussed ''probationary bar'' in New Mexico.

Law School Statistics.—In 1933-34 the degree-conferring law schools in the United States numbered 190, of which 83 were full-time, 84 part-time, and 23 of the ''mixed'' type, maintaining separate full-time and part-time divisions. As compared with the year before, there was one less full-time school and a drop of two in the number of ''mixed'' schools, but a net increase of eight in the number of part-time schools. The autumn attendance was as follows: Full-time (complete), 15,218, being 240 in excess of the figures (revised) for the preceding year; part-time (figures partly estimated for 9 schools not reporting), 12,590, being 421 less than the year before (4 schools not reporting); ''mixed'' type (figures estimated for 2 schools not reporting), 11,313, being 1,042 more than the year before (complete); total for all schools, 39,121, being a net gain of 861. Of the students attending schools of the ''mixed'' type, 3,929 were in the full-time, and 7,384 were in the part-time divisions. At the close of the academic year, 69 of the full-time schools (83 per cent) were members of the Association of American Law Schools, and these, with 4 others (making 88 per cent) had been approved by the Council on Legal Education as complying with the standards of the American Bar Association. No exclusively part-time school (conferring degrees) had qualified under the standards of either Association, but 7 of the ''mixed'' type were members of the Association of American Law Schools, and these, with 4 others, had been approved by the Council on Legal Education. One part-time school not conferring degrees had likewise been approved by the Council. Among degree-conferring schools, those approved by the Council contained 93 per cent of the exclusively full-time attendance, 41 per cent of the attendance at schools of the ''mixed'' type, and 48 per cent of the total attendance at all law schools.

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MEDICAL EDUCATION

Advisory Board of Medical Specialties.—This Board was organized in 1933-34 for the purpose of coordinating graduate education and certification of medical specialists in the United States and Canada. The board reports to and functions in conjunction with the Council on Medical Education and Hospitals of the American Medical Association. The organization of this board is in harmony with the recommendations of the Committee on Educational Policies of the Association of American Medical Colleges to the effect that

''The determination of the qualifications of specialists to practice in a special field should be based on the fulfillment of certain minimum educational requirements and the passing of a specialist examination. The possession of the necessary qualification should be recognized by a non-compulsory certificate or diploma and by the publication of a register or list of those holding such specialist certificates. The supervision of the qualification and certification of specialists should be placed under a board or council consisting of representatives of the medical practitioners, the medical associations, the medical licensing bodies and the universities.''

The Advisory Board For Medical Specialties has prepared the following statement of ''Essentials For Approved Special Examining Boards.''

I. Organization
  1. A special examining board to be approved by the Advisory Board for Medical Specialties should present a well recognized and distinct specialty of medicine.
  2. It should be composed of representatives of the national organizations of that specialty including the related section of the American Medical Association.
  3. It should be incorporated.
  4. A special board should:
    (a) Determine whether candidates have received adequate preparation.
    (b) Provide a comprehensive test of the ability and fitness of such candidates.
    (c) Certify to the competence of those physicians who have satisfied its requirements.

II. Definition of Special Fields
  The following branches of medicine at present are recognized as suitable fields for the certification of specialties:
  1. Internal Medicine
  2. Surgery
  3. Pediatrics

4. Obstetrics and Gynecology
5. Ophthalmology
6. Otolaryngology
7. Dermatology & Syphilology
8. Psychiatry & Neurology
9. Urology
10. Orthopedic Surgery
11. Radiology
12. Pathology

III. Qualification of Candidates

Each applicant for admission to the examination should be required to present evidence that he has met the following standards:

A. General Qualifications*
   1. Satisfactory moral and ethical standing in the profession.
   2. A license to practice medicine.
   3. Membership in the American Medical Association or, by membership in such other medical societies as are approved by the Council on Medical Education and Hospitals of the American Medical Association. Membership in other societies should not be required.

B. Professional Education*
   1. Graduation from a medical school of the United States or Canada recognized by the Council on Medical Education of the American Medical Association.
   2. Completion of an internship of not less than one year in a hospital approved by the same Council.

C. Special Training* (to be effective as far as practical not later than Jan. 1, 1938)
   1. A period of study after the internship of not less than three years in clinics, dispensaries, hospitals or laboratories recognized by the same Council as competent to provide a satisfactory training in the special field of study.
   2. This period of specialized preparation should include: (a) intensive graduate training in anatomy, physiology, pathology, and the other basic medical sciences which are necessary to the proper understanding of the disorders and treatment involved in the specialty in question; (b) an active experience of not less than eighteen months in hospitals, clinics, dispensaries and diagnostic laboratories recognized by the Council as competent in the specialty; (c) examinations in the basic medical sciences of a specialty as well as in the clinical, laboratory and public health aspects.
   3. An additional period of not less than two years of practice.

Resurvey of American Medical Schools.—In order to evaluate the changes and consolidate the gains that have been made in medical education, the Council on Medical Education and Hospitals decided in the fall of 1933, to undertake a comprehensive resurvey of the medical schools of the United States and Canada. In order that the visitation of medical schools might be completed within a reasonably short time, the Council obtained the services of Dr. Herman G. Weiskotten, Dean of the School of Medicine of Syracuse University. The general character of the undertaking is a fact-finding study. It is intended to collect and record such information as is pertinent regarding each institution that is included in the survey. Schools that are not now approved will be visited only on request. The necessary data will be secured partly by correspondence and partly from the personal observation and inquiry of the Council's representative. The purpose of the Council and its allied organizations will be achieved in such measure as faculties and administrative officers contribute their own enthusiastic support to the enterprise.

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* In case of an applicant whose training has been received outside of the United States and Canada, the credentials must be satisfactory to the Advisory Board.

While the survey is engaged in finding out what medical education is, the Council is also concerned with what it ought to be. To reappraise the aims and methods of medical teaching, a special committee has been created to act with the Council in the formulation of standards and policies. Its function will be to prepare a plan, or blue print, for the guidance of those who are molding our educational processes. Its personnel consists of Dr. Reginald Fitz (Chairman), Dr. Waller S. Leathers, Dr. Dean Lewis, Dr. Willard C. Rappleye, Dr. Harold Rypins, Rev. Alphonse M. Schwitalla, S.J., and *ex officio*, Dr. Ray Lyman Wilbur, chairman of the Council, and Dr. William D. Cutter, secretary.

The survey was initiated in September, 1934. It is estimated that two years will be required for its completion. Data collected to date are too incomplete to warrant any conclusions.

Enrollment Data.—In 1934, there were 22,799 students enrolled in the 77 medical schools in the United States. There were 5,038 graduates in 1934. It is interesting to note that this is the largest number of graduates since the period from 1905 to 1910. In 1905 there were 160 medical schools. The number of graduates that year was 5,606.

EDUCATION FOR THE MINISTRY

Survey of Theological Education.—The most important event among the year's developments in the field of theological education is the completion of the study which has been carried on during the last four years under the joint auspices of the Conference of Theological Seminaries and The Institute of Social and Religious Research and which has now been published in four substantial volumes under the title of *The Education of American Ministers* (N. Y., 1934). This gives us the opportunity not only to survey the present condition of theological education but also to estimate the most important tendencies and emphases in this important educational field.

Low Level of Education. — The facts disclosed as to the present condition of ministerial education are startling. They show that to serve the 200,000 Protestant congregations in the United States there are 150,000 Protestant ministers. Of these, two out of five are graduates neither of college nor seminary. Thus, many congregations (some 80,000 in all, or more than a third of the whole) must depend upon the part-time services of a minister, while of the total number less than half can furnish the financial support necessary for the maintenance of a fully trained minister.

Not the least significant part of the study is the light which it sheds upon the changes that have taken place in the status of the ministry, the new problems which the minister faces as a result of changes in the educational outlook of his congregation and the economic conditions on which it must depend for its support. Evidence is given of a growing unrest in the ministry, a sense of helplessness in dealing with pastoral problems, of the need for a guidance and leadership not at present adequately supplied.

Efforts toward Improvement.—At the same time there are not a few encouraging features. First of all may be noted the widespread concern on the part of those responsible for the conduct of the seminaries over the weakness and failure of the present educational methods and a serious purpose to improve them as far as possible. The existence of the present study is the best indication of this. It must be remembered further that, in addition to the formal instruction given in colleges and seminaries, not a few of the larger churches are making provision for the further instruction of their more poorly trained ministers by the prescription of definite courses of reading and examination under instructors appointed by the church. The Conference System of the Methodist Episcopal Church is the best known but, by no means, the only example of the effort which the churches are making to give their ministers on the field a better education. The general recognition by the seminaries of their responsibility for providing facilities for continued ministerial education not only to their own graduates but to ministers in general is a significant sign of the times.

Over-specialization. — Passing to more technical matters it may be noted, first, the general agreement that the present seminary curriculum, like that of most professional schools, suffers from over-specialization. The rapid growth of the elective system has resulted in splitting up the curriculum into a number of small courses on a variety of different topics with the result that the student is in danger of graduating with a smattering of many subjects and no real proficiency in any. Moreover, the interest of too many teachers is in the training of specialists rather than in that broad professional training which fits a man for the pastoral service which is the major responsibility of the majority of seminary graduates.

So far as subject matter is concerned, there is general agreement that the subjects which in the past have held the central place in the curriculum—the Bible, church history, Christian doctrine, and practical theology—should still furnish the backbone of the curriculum. But there is also very general agreement that the method in which these subjects have been taught needs radical revision. Instead of a number of different detailed courses, there should be certain broad fields or divisions in which the different subjects are grouped according to a definite plan so that the student is furnished with a systematic conspectus of the field to be covered. Within these fields we should distinguish far more clearly than has hitherto been done between the needs of the student who desires a broad introduction to the field of theology as a preparation for the pastoral ministry and that limited group of students who are looking forward to specialized tasks and are ready at once to enter upon advanced study.

Yet it is easier to say that this ought to be done than to know how it should be done. For one thing the amount of material to be mastered is continually increasing and the need of making some place for it in the curriculum is imperative. Hitherto this has been accomplished by adding new subjects or founding new chairs. With Christian ethics is associated sociology; with practical theology, religious education, and the psychology of religion with church history, Christian missions and comparative religion. Something can be done by re-grouping, something by combination. But when all is said, it is clear that no one plan can meet the need of all students and that there must be greater differentiation both in the grouping of students and in the assignment of the faculty. A comprehensive course, largely required, would seem best to fit the needs of the ordinary student looking forward to the pastoral ministry. Beyond this there is room for wide election for graduate students and for men of exceptional ability. Much can be done, too, through tutorial methods, and where these methods are not practical, by individual counseling.

Field Work.—One significant development is the general recognition of the fact that the responsibility of the seminary is not exhausted by provision for the academic needs of the student, but that in a true sense all his life in the seminary should be regarded as part of his prospective training. This conviction crystallizes in provision for what is known as field work — courses in which the work which the student is doing in church or settlement is regarded as a kind of laboratory and made the basis of systematic discussion by the class or a selected group. In a few institutions the seminary assumes full responsibility for student assignment to such work and gives academic credit for the work done. In others the arrangement is more informal. But the principle is very generally recognized and has large implications for the future.

Equipment.—So far as the equipment of the seminaries is concerned, the impression produced by the study is on the whole favorable. Both in material equipment and in the matter of financial support the seminaries are on the whole as well off as corresponding institutions of similar size in other professions. There is, however, one conspicuous exception. A careful study of available library facilities shows that, with the exception of a few of the larger and better equipped institutions, the libraries of the great majority of seminaries are small and ill-furnished with the latest books and that no proper provision has been made for their administration according to the standards which obtain in corresponding institutions in other fields.

Success of Graduates.—In view of the serious criticisms which are often leveled against the output of the theological seminary, every effort was made to decide how far the graduates of these schools were succeeding in comparison with those ministers who had not had the advantage of combined college and seminary training. Judged by every test which the wit of Professor May could devise, the college and seminary trained graduate shows himself more successful than his colleagues who have not enjoyed such training. As between men who have had college training but no seminary training and *vice versa,* it was impossible to detect any signficant variation, and the same was true as between graduates of liberal and of conservative schools.

Standardization of Theological Degrees.—One of the great weaknesses of the present system of theological education is the lack of uniform standards both for admission and for graduation. An important step in the direction of a unified policy was taken by the Conference on Theological Seminaries at its meeting in 1932 in adopting the report of its Curriculum Committee on the standardization of theological degrees: ''The B.D. degree be adopted as the standard first degree for a theological course. It will normally require three years of two semesters, or their equivalent, beyond the A.B., or its equivalent, to complete this course. It should be regarded as a professional degree, the standards of which in intellectual attainment are fully equal to those in any other field of scholarly activity.''

The report further recommends that ''a diploma be awarded for work during a theological course of three years which does not meet the full requirements for the bachelor's degree in theology. We recommend that the diploma be *not* awarded for work which has satisfied the degree requirements in quantity, but has not satisfied those requirements as to quality.''

The report in addition recommends that

''a master's degree in theology be adopted as the standard second degree in recognition of work which would normally extend one year beyond the bachelor's degree in theology,'' and that ''where a theological seminary without university affiliation grants a doctor's degree, the Th.D. be the degree used. While the Conference regards it 'as undesirable for a seminary not an integral part of the university to grant the Ph.D. or the A.M. degrees, it considers it legitimate for a seminary affiliated with a university to offer a program leading to the Ph.D. and A.M. degrees in cooperation with a university, the degree being given by the university.' ''

Catholic Seminaries' Curriculum.—At the Thirtieth Annual Meeting of the National Catholic Educational Association consideration was given to the training of the priest in the social sciences. Students, it was said, should receive a sympathetic attitude toward social and economic questions. There is grave danger of losing contact with the wage-earning class of the country. Since even priests think of sociology and economics as branches separate from ethics and moral theology, it becomes necessary to emphasize the close connection that exists between the problems of business and the principles of morality. Priests preparing for the professorship of moral theology should receive thorough training in the fundamental principles of economics. The seminary curriculum, as now arranged, does not admit of an extended course in social science. However, Papal declarations make it plain that the social question is to be thoroughly studied by seminarians, and consequently some readjustment of the curriculum will have to be found. A number of seminaries have included among their branches of studies also the systematic study of the social sciences.

ENGINEERING EDUCATION

Enrollment.—The downward trend in enrollment of undergraduate students in American engineering colleges which began in 1930-31 continued through the year 1933-34. Accurate figures are not available, but apparently the decrease for the entire country was about 5% for the year. For the present year, 1934-35, the trend seems to have reversed itself, and enrollments appear to be again on the increase. This appears to be particularly true in the Middle West where increases of as much as 100% in entering freshmen have been reported. The steady increase of enrollment in graduate courses which has been one of the pronounced trends in engineering education for the past decade seems to have continued unabated. The decrease of enrollment in undergraduate evening students which continued through 1933-34 also appears to have been checked in 1934-35.

The PWA and Engineering Education. — A number of institutions are enabled through grants by the Public Works Administration to provide new or enlarged physical plants. The University of Virginia is constructing a group of engineering buildings at a new site on the campus; the University of Alabama will construct a new Experiment Station for the U. S. Bureau of Mines in connection with the Engineering College and the Virginia Polytechnic Institute at Blacksburg is making extensive additions to its plant through a Public Works allotment of over $1,000,000—among the major items are to be a teaching and administration building, dormitories, utilities building, auditorium, faculty apartment houses and other extensions and improvements.

The Study of Graduate Work.—Because of the continued and growing importance of graduate work in engineering, the Society for the Promotion of Engineering Education, through its Committee on Graduate Study, with the cooperation of the United States Office of Education, is conducting a survey of the status and trends of graduate instruction. The study will be conducted during the year, 1934-35; the report will be presented in the spring of 1935. The survey will include an analysis of statistics of enrollments, course requirements, administration and supervision, aims and purposes, and other factors as well as an interpretation of the results in the light of changing demands on the part of industry for the product of the colleges.

There has been a notable increase in graduate enrollment in engineering, amounting approximately to one-fourth of the total of the senior classes of the country. This is of significance because the time is not far distant when openings in the strictly technical work in engineering will be filled almost entirely by young engineers with graduate preparation. This will occur particularly if engineering schools strive to limit graduate students to those who in their undergraduate years displayed superior capacity for scientific achievement.

Report on the Investigation of Engineering Education. — The Society for the Promotion of Engineering Education announces the publication in the fall of 1934 of the second vollume of its reports on the comprehensive study of enginering education conducted during the years 1924-1929, inclusive, and on the summer schools for engineering teachers conducted by the Society from 1927 to 1933, inclusive. This volume, together with Volume I, comprises over 1,700 pages of material, and forms one of the most exhaustive reports on any survey of higher education that has ever been undertaken. Copies of the reports may be secured from the Office of the Secretary, Society for the Promotion of Engineering Education, University of Pittsburgh.

Engineers Council for Professional Development.—In 1932, the Society for the Promotion of Engineering Education became one of the member bodies of the Engineers Council for Professional Development, representing the united profession of engineering in its consideration of problems of professional development and advancement. As a part of its program, the Council has approved a project constituting its Committee on Engineering Colleges as the official agency for the accrediting of engineering colleges. Funds for an initial year's work have been supplied by Engineering Foundation, and the engineering colleges of the country will be examined and accredited by this agency beginning shortly after Jan. 1, 1935. For the first year's work the Committee of the Council will appraise institutions in New England and the Middle Atlantic States.

The Council also is studying the orientation and guidance of prospective engineering students with a view to attracting the qualified and to discouraging application on the part of those not qualified; it is also concerned with the recognition and licensing of graduates and proposes to coordinate requirements for membership in the professional engineering societies and requirements for the professional engineer's license. The Council represents not only the Society for the Promotion of Engineering Education, but the professional societies of chemical, civil, electrical, mechanical, mining and metallurgical engineers, and the National Council of State Boards of Engineering Examiners.

Conferences of Teachers of Engineering.—As a preliminary to the annual convention of the Society for the Promotion of Engineering Education, held at Cornell University in June, 1934, group conferences of about 900 teachers of engineering were held in about 20 divisions of engineering instruction. The conferences were of two and one-half day's duration, and were directed, in general, toward the study of advances and trends, both technical and educational, in the respective fields of engineering instruction. This innovation in the method of holding the annual meeting of the Society proved of extreme interest and value, providing as it did a comprehensive clearing house for the interchange of ideas and experiences. Although conducted on an elaborate scale the conferences were eminently successful and gave evidence of skillful and detailed planning.

BUSINESS EDUCATION

More Advanced Training for Business.—Economic conditions and types of business organization have determined in no small degree the emphasis and trends in business education. In periods of long apprenticeship a few fundamental tools such as stenography, typewriting, commercial arithmetic, English and bookkeeping were all that business required for entrance. Later on as business organization and business relationships became more complex a higher type of training was desired providing the embryo business man with integrated knowledge of a business organization as a whole, information covering accounting, finance, marketing, and principles of management, and a general ability to analyze business situations, reason logically and make intelligent judgments within the range of accepted business practices.

New Problems of Business Education. — The period since 1930 has presented new problems for the business man and for business education. The conviction firmly established, that whatever might be the cause of economic and business collapse in other parts of the world, the policy and practices of business in the United States was sound, died slowly. As the depression was prolonged, doubt as to established business practice has appeared, and many alert and adaptable schools of business have taken the opportunity of inquiring into the fundamental soundness of previous business philosophy. Students demand and schools are giving more attention to the study of accounting for purposes of revealing information about business. The social aspect of banking, investment and corporation finance are of prime importance as also are the social phases of marketing, salesmanship and advertising.

Social Concept of Business.—The greatest changes in business education during the past year and a half has not been in the method pursued so much as in the purpose which is to enable the student to understand the economic society in which he lives and to demonstrate the necessity for any sound business philosophy to give first thought to the social aspect of business in any fundamental consideration. This concept in many cases has been radically different from any previous approach and bids fair to advance business a long way toward a profession and to create a more stable basis for business success.

The social concept of business is not new by any means, but in too large a measure it has been identified with theoretical economics and been given scant consideration by so-called practical people. The trend of course registration in Schools of Business everywhere has been toward economics in an effort to get down to fundamental considerations. By and large the criticism of economics as being theoretical and not practical is too true, and it is a hopeful sign that a combination of the theories of economics and the more practical teachers or business subjects is being accomplished. Such joining of forces offers hope that out of the joint efforts will come a more effective presentation of the fundamentals of our economic life which will vitally affect our business conduct. If this should be accomplished, the significant changes in business education during the past two years will be marked in history. Just as the schools of business supplanted in large measure the old system of apprenticeship, in a much larger sense will they be called upon to provide the fundamental education and training which will be required if business is to be carried on with due regard to social considerations.

Registration in schools of business as in other fields of education has been affected by the economic conditions but the decline has been greater. The fact that opportunities for employment have been less and the apparent rewards not so enticing has had their effect on registration. Students have not been greatly interested in knowing how business was conducted when they contemplated the results. With the changed viewpoint and approach to economic and business problems, has come a renewed interest as shown in increased registration in those schools which have met the situation and are working toward its solutions.

THE PROFESSIONAL EDUCATION OF TEACHERS

National Survey of the Education of Teachers. — This survey, which was financed by a Federal appropriation and conducted by the United States Office of Education, was begun in 1930 and completed in 1933. To date, only Volume I, *Bibliography* and Volume IV, *The Education of Negro Teachers,* have been published. There will be six volumes. Volume VI, *General Summary and Recommendations* by E. S. Evenden, Associate Director of the Survey, has recently been made available in mimeographed form.

Needed Reforms in Teacher-Education.—The survey will provide the factual basis essential to thoroughgoing reform of the teacher-training program of the country. There is general agreement that reforms are needed. Too many institutions prepare teachers. Too many persons are being prepared for teaching, but not enough capable people are entering the teaching profession. Teacher-training curricula are badly in need of revision. The level at which professional study is undertaken should, and probably will, in some of the states, be elevated to a post-junior college level. State education departments need to be strengthened in order that they may function satisfactorily in discharging their obligations in the field of teacher-education, including the accrediting of teacher-training institutions and certification of teachers. If these and other reforms should follow the dissemination of the findings of the National Survey of the Education of Teachers, the time and money expended will have been invested wisely.

VOCATIONAL EDUCATION*

By L. H. Dennis

Executive Secretary, American Vocational Association, Inc.

DIFFICULTIES OF OCCUPATIONAL ADJUSTMENT

Present day employment conditions have made it increasingly difficult for boys and girls to make their occupational adjustments. With the deferring of entrance upon employment until 19 and 21 years of age, the high school finds itself faced with a new responsibility as well as a new opportunity to assist youth at a critical age in the difficult process of occupational adjustment. The scarcity of employment and the consequent amount of unemployment have accentuated the difficulties of the situation. This has brought about a condition where the specifically and well-trained man has the distinct advantage over the untrained man in securing and holding employment.

Some industrial leaders realize that as soon as the wheels of industry once again turn in a more or less normal manner, there will be a shortage of skilled workers. These industrial leaders are encouraging vocational training during these slack times as a matter of sensible preparedness. It is predicted by some that when normal times again prevail we may find a hectic rush on the part of some industries to find or develop skilled workers.

It takes no prophet to ascertain or point out that affairs, economic and social, are somewhat out of joint now in this country. There is undoubtedly a closer relationship between a man's economic situation and his social stability than may always be sensed. The social aspects of the crime wave among our youth have been quite apparent but little official or other intelligent effort has been made to stabilize our youth from an economic standpoint. Many of the youth in our reformatories and penitentiaries, youth off-balance socially, have been brought to their present plight in many cases because of their inability to make a satisfactory economic or occupational adjustment.

VOCATIONAL TRAINING

Educational Opportunities. — Vocational education under public auspices is relatively new in this country and yet the number and diversity of vocational education opportunities in connection with secondary and evening schools are of much greater extent than is generally understood. A perusal of the recent reports of the U. S. Office of Education and of the Federal Board for Vocational Education, reveals a broad range of occupational training opportunities, as a part of the program of public education in the various states. This includes training for the various phases of agriculture, occupational training in commerce and business, and industrial education for a multiplicity of trades and industrial occupations. Training for home making or home economics as it is more generally known, is almost universal in secondary schools of this country, except in the smaller high schools in rural communities, where secondary school facilities are quite meager.

Application of Theory to Practice. —Undoubtedly one of the most valuable features of vocational training is the close relationship existing between the work of the school and actual life experiences. Trade teachers are taken from the trades, men being selected who have demonstrated their skill as expert workers in the trade. Frequently advisory committees are appointed consisting of representatives of the trade for which the training prepares. This insures a more definite and practical application of theory to practice and a closer articulation between school and life.

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* The author is indebted to George P. Hambrecht, State Director of Vocational Education, Madison, Wis., for the section on part-time education; to Adelaide S. Baylor, Chief of the Home Economics Section, U. S. Office of Education, Washington, D. C., for the portion on home economics education; and to Jacob Spies, Supervisor of Commercial Education, Sheyboygan Vocational School, Wisconsin, for that part dealing with commercial education.

Industrial Courses.—The cooperative industrial courses probably offer the best opportunities for a combination of training in theory and shop practice, actual experience in the trade involved, and the occupational adustment of the individual receiving the training. These cooperative courses usually involve a two-year period of full-time instruction in school and a two-year period of half-time in industry and half-time in school. The time element varies in different schools. In a program of this character boys learn the abstract principles of science, mathematics, and economics and apply them in actual practice or work on a productive basis on the job in the trade for which they are being prepared. It is worth noting that there are very few, if any, of these cooperative industrial training boys in any of our reformatories and penitentiaries. The directness with which the school training assists these boys in making their economic adjustments has an important bearing upon their social adjustments and stability.

Farming involves both a business and a method of living. Successful farming is an intelligent combination of science and the practical arts connected with the soil and animal industry. The economics of agriculture have assumed increasing importance in this modern industrial age. Vocational training in agriculture includes instruction in the science and economics incidental to farming as well as methods of putting into practical application on the farm tested theories and principles. Vocational instruction in agriculture has developed a real rural youth movement with both social and economic implications. This movement has crystallized in the development of the Future Farmers of America, an organization having over 85,000 members. This organization centers around the vocational instruction offered in vocational departments of agriculture in rural high schools and has as one of its objectives the development of rural leadership and civic responsibility on the part of our rural youth.

The development of adult education has also given a decided impetus to vocational training. The attention now being given to apprenticeship training and the training of other learners in various trades and occupations has emphasized the need for a further and more diversified type of vocational education. The appointment of a national committee on apprenticeship in connection with the formulation of the various codes in industry will bring the need for vocational education to the attention of industrial leaders as well as to educational administrators.

Legislation.—The passage of the George-Ellzey Vocational Law authorizing the appropriation of Federal funds supplementing the Smith-Hughes Vocational Law has greatly stimulated the development of new vocational education opportunities during the past year throughout the United States.

PART-TIME EDUCATION

Outstanding current developments in part-time education include: (a) extension of regular work of part-time day and evening classes for employed workers; (b) additional classes through Federal funds for "Work Relief in Education"; (c) classes in conservation camps, transient homes, etc.; (d) additional college extension classes; (e) radio classes; and (f) a nation-wide program of apprenticeship training.

Personnel and Attendance.—Part-time classes in trade and industry, home making, agriculture, and general continuation, with Federal aid under the Smith-Hughes law, have a considerably changed personnel. State laws, NRA requirements and lack of employment opportunities have kept in the fulltime schools most young people under 16; but unemployment has increased greatly the attendance of adults on part-time and evening classes in both vocational and general subjects in those states and communities which have well-developed facilities.

Rural and Village Classes.—Part-time schooling opportunities in addition to those in trade and industry, home making, agriculture and general continuation, regularly offered in the various states with the aid of Smith-Hughes and George-Reed funds, are now made possible by special Federal funds aimed primarily to provide Work Relief in Education to unemployed teachers. Through these funds part-time adult classes have been organized in rural districts and villages as well as in the cities. There are classes in physical education, in music, in literature, speech, dramatics, business writing, creative writing, in science, in social science, in mathematics, in clothing, in foods, in child care and training, in parental training, in home nursing, in manual arts, and in almost every subject imaginable for which there is any popular demand among adults.

The Conservation Camps established for unemployed youths are offering opportunities for some very effective schooling on a part-time basis. Homes for transients in cities and near cities have class periods for their members with teachers provided from Work Relief in Education Funds.

Industrial Apprenticeships. — A significant development in part-time education was the adoption by the Federal Government of a plan for a nation-wide development of industrial apprenticeship training, with supervision in each state by boards representing employers and employes, and part-time schooling requirements; a system similar to the one which has been in operation in Wisconsin since 1911.

COMMERCIAL EDUCATION

Progress during the past year in commercial education seems at first glance to be backward instead of forward. We seem to be coming down the ladder, not going up. Upon closer examination, however, cause for alarm can be displaced with satisfaction. The targets toward which the training programs of this phase of vocational education have been aimed are finally being brought to within the shooting distance of the small arms carried by the majority of students enrolled as members of commercial squads.

Objectives of commercial education have been away out of the reach of the great numbers desiring to become ''white collared'' workers. These goals included administrative positions such as owners, executives, office managers, department heads, C. P. A.'s, overlooking the innumerable jobs which required a definite knowledge of business in a more simple form. Some of these jobs on the lower level are the bookkeepers, typists, office boys, change clerks, sales people, cashiers, and even waiters.

New Trends. — There is now a strong trend, increasingly noticeable during the past year, toward a revision in the obectives of commercial education, probably not so much a change as an addition to the old. These new objectives recognize the existence of jobs lower in the scale than the executives. They also assume the necessity for training for these jobs on the lower level as well as for those on the managerial level. Especially is this new tendency evident in the field of distributive occupations.

Salesmanship.—The new interpretation placed upon the apprenticeship laws has pointed out that there is a definite need for training both on the job and in school for the lesser positions in business as well as in the trades. It is now possible to apprentice young people to business men for the purpose of training for any job within the sphere of business. In the field of salesmanship this sytem of educating workers is being rapidly developed. It not only means definite tie-up between the public educational system and business, but it also means a permanent source and outlet for placement.

Office Work.—In the field of office work this same method of training can be applied. In fact, it is being applied in a number of places at the present time. In Fond du Lac, Wis., the first apprenticeship agreement entered into under the new Apprenticeship Law was one between an office trainee and the Chamber of Commerce. A young fellow was given a definite program of training while actually working in the office of the Secretary of the Chamber of Commerce, which in turn was tied up with the training program he was about to receive in the vocational school. The number of hours on the job and the number of hours in school per week were satisfactorily arranged between the school authorities and the secretary, and the boy was made happy with the definite assurance of earning while learning, and a permanent job if he made good at the end of the training period. The incident is an illustration of what is about to be done in the field of cooperative education.

Conference Methods. — Not only has progress been made in the training of beginners in the field of commercial education, but there is a definite trend toward additional training for those already employed in the field of adult education. This movement has gained its greatest impetus among the workers in the field of salesmanship. With competition as keen as it is today and material things on a par as far as quality and values are concerned, executives are recognizing the fact that the successful business is the one which employs the most fruitful training methods for increasing the efficiency of their salespeople. In that regard they are, more and more, looking to the public schools for help. Groups of oil station attendants, milk delivery men, delivery boys of all kinds, retail sales clerks, and others of like nature are demanding and receiving in a great many places assistance along the lines of their trade. The most successful method employed in instructing these people is the conference method. Homogeneous groups meet at stated periods either during the day or evening, and under competent leadership, discuss problems pertaining to their occupation. The experiences of the group regarding a particular problem are pooled, and the results are charted and the charts are submitted to the members of the group for their reference. In many cities the demands for this kind of instruction have exceeded the resources available to the schools to meet them.

TRAINING FOR THE VOCATION OF HOMEMAKING

Purpose and Accomplishment. — The purpose of the vocational program in home economics is to aid present and train prospective homemakers in the vocation of homemaking. To that end funds have been provided through the Smith-Hughes, George - Reed, and George - Ellzey Acts, together with state or local funds or both for the payment of salaries of teachers to give the necessary instruction for this purpose to youth and adults. Vocational classes in home economics are designated as (1) all-day, (2) part-time, and (3) evening or adult, the first of which is for youth in full-time school; the second for employed youth who can come for a portion of the time only; and the third for adults. In 1934, approximately 350,000 youth and adults were enrolled in vocational classes in home economics which were organized in both rural and urban centers in every state in the United States, the Territory of Hawaii and the Island of Puerto Rico.

Curricula and Methods. — In the past year increasing emphasis has been placed upon the construction and revision of curricula for vocational programs in home economics in both schools and teacher training institutions, based upon informal surveys of individual and community needs relative to home and family life. These findings and resulting changes in curricula and methods have brought about modifications and rearrangements in plant and equipment where combination rooms for many types of homemaking activities, and cottages, are replacing and supplementing the formal school types of plant and equipment.

Need for Continuous Surveys. — There is daily evidence of the necessity for continuous local and state surveys to prevent (1) content lag, (2) ineffective methods of teaching, (3) inadequate and inappropriate plant and equipment, and (4) failure to check up from time to time the effectiveness of the home economics teaching.

Home and School Cooperation.—

Home and school have been brought more closely together with clarified common understandings and enlarged mutual helpfulness through the programs of home projects which apply school instruction to meet needs in the homes, and have resulted in improved family budgets; better selection, use, and care of family resources; better nutritional practices; increased interest and ability in serving younger members of the household; and more satisfactory family relationships.

Employment Aids.—The vocational program in homemaking has served also especially in the depression, as a vocational guidance agency in pointing the way to remunerative employment such as household service, care of children, construction of clothing for others, preparation of saleable foods, and the like, to supplement family resources. To individuals showing special proficiency in any of these fields, special aids have been given to prepare them for these special types of service. There is a growing tendency to measure the results of instruction in home economics in terms of behavior, attitudes, points of view, and appreciations rather than in skills and information alone.

National, State and Local Cooperation. — Cooperation of the vocational program with other national, state, and local agencies interested in and working for the betterment of home and family life, has been marked in the past year. This cooperation has included national, state, and local women's organizations and the various Federal, state, and local agencies operating for relief in the depression and bringing about recovery.

Pending Plans.—Some of the areas to which it is hoped more attention may be given in the coming year have to do with the better preparation of youth and adults for their responsibilities as consumers; more careful attention to the needs of the millions of young people who are out of school unemployed and to whom the regular school programs are illy adapted; and closer correlation of the programs of pre-service training and in-service training to the end that the latter may more fully supplement the former and each strengthen the other. During the present year a far more critical attitude has been developed toward the methods used for in-service training of teachers in home economics, and some very excellent programs for that purpose developed in the states.

ADULT EDUCATION

By Ned H. Dearborn

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SCOPE AND MEANING

The adult education movement has reached proportions that mark it as the outstanding aspect of American education during this decade. Its future character is problematical but there is general agreement that adult education will expand in such ways as to merit its recognition as a permanent major social factor in our national life.

There are many intelligent but uninformed people who still regard adult education as related only to problems of illiteracy or Americanization. Some even regard it as merely an emergency provision for the unemployed. The movement, in fact, is reaching into all groups of our social order—age, economic, political, religious, social, rural, urban, nationality, labor, financial, and industrial. It is stimulated and supported by Federal, state, and local public agencies; by Federal, semi-religious, and social service organizations; by private schools, colleges, and universities; by public school systems and by municipal and state institutions of higher learning, and by philanthropic individuals, groups, councils, and associations. The movement is characteristic of our democratic society. It is the concern of all but the responsibility of no one group, and it lacks the direction of an articulate national policy. It will, nevertheless, emerge as an enduring social necessity with orderliness based upon a more or less definite philosophy.

The best single reference for information regarding the nature and extent of the movement for the country as a whole is the *Handbook of Adult Education in the United States*, published in 1934 by the American Association for Adult Education. The New York Adult Education Council in a pamphlet gives information as of June 1934, regarding the ''Picture of Adult Education in the New York Metropolitan Area.'' At that time the Council had listed 1,402 organizations for that ''Area'' with course offerings numbering 9,643.

CLASSIFICATION OF ACTIVITIES

Adult education is now and bids fair to continue as broad as life itself. Five widely generalized categories of activities in adult education may serve to indicate the vast scope of the movement: (1) personal and occupational adjustment problems, (2) current social issues, (3) general cultural study, (4) appreciational and creative work in fine and applied arts, and, (5) physical and social recreation. This classification of activities in adult education can be divided and sub-divided *ad infinitem*. The pervading materialism in American life, an accompaniment of our rapidly developed and dominant industrialism, has resulted in a marked emphasis on vocational education. The New York Adult Education Council report, mentioned above, cites the fact that 45% of the offerings for adults are occupational. The Council maintains an Information Service. It reports that 80% of the inquiries are in the age group 20–44 and that 48.7% of the inquiries are for occupational courses. No comparable figures are available for the country as a whole but the New York Metropolitan Area includes approximately one-twelfth of the population of the country.

CHANGING CONCEPTIONS AND VALUES

Vocational education, in the formative years of the nation until the latter part of the Nineteenth Century, was handled with comparative ease and effectiveness because of the relative simplicity of our occupational, economic, and family life. During the last 75 years preparation for occupations, outside of the professions, has been a tremendous and a complex educational problem because of the rapid introduction of the machine and specialization in industry, the growth and character of our population, increase in transportation facilities, and changed standards and conditions of living. James E. Russell states that his conception of vocation has broadened from getting a living to ways of living. That is characteristic of the changes of the past five years in adult education. Dorothy Canfield Fisher explains the new and added emphases in adult education as results of the ''will to understand'' as well as of the ''will to survive''. At any rate, vocational education for adults, while occupying a large phase in course offerings, is practical, flexible, and cognizant of other values in the adult education movement which may be characterized as psychological, sociological, political, intellectual, civic, aesthetic, avocational, recreational, religious, and creative or expressive.

The country seems to have recognized that the work of traditional schools and colleges is not sufficient for the needs of contemporary society. It must be supplemented by educational opportunities for the millions of mature citizens who face the problems of a changing industrial society, of a democratic government adequate for modern conditions of life, and of a new group life adjusted to present needs. Satisfactory living, in its multifarious relationships and improvement in the conditions of a satisfying life depend upon understanding and more understanding that goes deep, wide, and far ahead. Hence the values inherent in the adult education movement.

No movement in education belongs to a single year but this report, by the title of the volume in which it appears, cannot be historical. The outstanding forms and agencies will be given brief treatment. Many activities and agencies worthy of note will not be mentioned. The reason is clear. This is not a survey report. It is an impressionistic report based on general observation and the available printed and mimeographed materials that have come to the author's attention during the year in his study of the adult education movement.

THE EMERGENCY EDUCATION PROGRAM

The economic conditions of the past five years have had at least one beneficial result. Staggering sums have been spent for relief, part of which have been diverted into adult education channels. This has provided some help in occupational education, reeducation, and placement, but the greatest returns seem to be in providing wholesome activities for the spare time of thousands. For the unemployed, the program has maintained and improved morale. At the same time, understanding and enjoyment have supplemented hope and confidence, a contribution of considerable magnitude. The chief benefit, from the standpoint of this report is the impetus given to the adult education movement. The emergency program has made education for adults a national reality for the masses. In five years the normal progress of a century has been forcibly presented to American education.

The Emergency Education Program is a Division of the Federal Emergency Relief Administration. It is administered with the advice of the Office of Education, United States Department of Interior. The program provides for (1) rural schools, (2) reading and writing English, (3) vocational rehabilitation, (4) vocational education, (5) general adult education, and (6) nursery schools. About $2,000,000 per month is expended on this program which provides employment for nearly 50,000 teachers for approximately 1,500,000 adults and children. An estimated expenditure of $352,000 for rural schools cares for 12,200 teachers and 423,300 children who would not otherwise be able to attend school because in hundreds of school districts with a population of 5,000 or less there are inadequate or no funds to keep the schools open. The nursery schools care for over 60,000 children in connection with which 18,000 parents receive organized education related to child development. The monthly expenditure is $192,600. The rest of the Emergency Education Program provides for adult education which is reported as follows in the February, 1934 report of the Administrator, Harry L. Hopkins: (1) estimated monthly expenditure of $273,300 for vocational training reaching 200,400 adults and employing 6,700 teachers, (2) $66,200 for vocational rehabilitation reaching 2,490 adults served by 396 teachers, (3) $190,000 for 109,000 adults in literacy classes and making use of 4,830 teachers, and (4) $874,200 for general adult education employing 18,430 teachers for classes accommodating 612,200 adults. The turn-over of adults in class enrollments from time to time makes the monthly figures here quoted only a partial story of the extent of the influence of the Program. In addition to all this, provision is made for financial aid for about 100,000 young men and women who are working their way through college.

Mr. Hopkins outlined in a bulletin dated July 2, 1934, the following subdivisions of vocational education: (a) trade and industrial education, (b) home economics education, (c) agricultural education, (d) commercial education, and (e) vocational adjustment and counseling for unemployed adults. The same bulletin defines general adult education as (a) workers' education, (b) parent education, (c) avocational training, hobbies and handicraft classes, (d) general academic education, (e) general informal education, and (f) cultural education.

PARENT EDUCATION

The Parent Education Program calls attention to (1) study discussion groups, (2) individual conferences with leaders, (3) directed participation or observation in nursery schools, (4) directed observation in public school classrooms (5) directed participation or observation in such community agencies as health clinics, juvenile courts, and play grounds, (6) directed observation of, and reports upon children in their homes, (7) study of motion pictures, slides, and photographs of children and child development, and, (8) study of educational exhibits of play equipment, toys, clothing, and children's books. Dr. L. R. Alderman, Director of all the Emergency Education programs under the Federal Emergency Relief Administration recognized the need for coordinating Parent Education with similar and extensive programs sponsored and conducted by public school systems and parents' associations. The Emergency program in Parent Education is only a part of the story of Parent Education in the country as a whole. In 1930 it was estimated that there were 5,687 study groups and that not less than 500,000 parents were annually being instructed in some phase of parent education. Among the leading organizations in this field are The National Council on Parent Education, the Child Study Association of America, and the National Congress of Parents and Teachers.

CIVILIAN CONSERVATION CORPS

This Federal project found expression in camps under the War Department for about 350,000 unmarried and unemployed men between the ages of 18 and 25. The original purpose was to provide work relief. The young men selected receive $30 per month, not less than $23 of which is sent home for the use of dependent members of the family. In addition board, lodging, and medical care is provided. Forty hours of work per week is in the agreement of acceptance. Under the leadership of Dr. George F. Zook, early in this program U. S. Commissioner of Education, the educational needs of these thousands became recognized. Dr. C. S. Marsh was appointed Educational Director. An educational director was appointed for each of the nine Army Corps Areas and the plan called for an educational adviser for each of the camps. There are approximately 1,500 of these advisers. The cost of the educational program for the first year ended July 1, 1934 was estimated at $1,000,000. Increased emphasis on this educational work has developed since that date. The importance of an effective program is found in the number of young men in the camps, the amount of spare time available, and the fact that appointment is for a six-months period. Each half year period finds a large replacement.

Dr. Marsh states the objectives of the CCC programs as follows: (1) to develop in each man, his powers of self-expression, self-entertainment, and self-culture, (2) to develop pride and satisfaction in cooperative endeavor, (3) to develop, as far as practicable, an understanding of the prevailing social and economic conditions, to the end that each man may cooperate intelligently in improving these conditions, (4) to preserve and strengthen good habits of health and of mental development, (5) by such vocational training as is feasible, but particularly by vocational counseling and adjustment activities, to assist each man to meet his employment problems when he leaves camp, and (6) to develop an appreciation of nature and of country life.

WORKERS' EDUCATION

This type of education differs from adult education generally in its adaptation to the condition and educational needs of workers. Until April, 1934, it was mainly for groups of industrial workers. Then groups of farm men and women requested an adaptation of the program to their needs. Now the leaders define a worker as anyone engaged in labor that is socially productive.

This movement originated under the leadership of Hilda Smith, then on the staff of Bryn Mawr College and now Specialist in Workers' Education on the staff of the Emergency Education Program. The Emergency Education Program in this field is an outgrowth of the Affiliated Schools for Workers scattered in different parts of the country.

In the August-September, 1934, issue of the *Workers' Education Magazine,* it is stated that 16 new training centers for teachers and 28 new summer schools for unemployed women were in operation this year, the costs met from Federal Relief funds. Workers' education was not originally planned as vocational although studies of vocational conditions, it is expected, will throw some light on this part of the program. The group study and discussion plan is generally followed with considerable attention given to government, economics, labor, industrial conditions, taxation, health, home economics, and general cultural subjects.

Several institutes have been sponsored and arranged by the Workers' Education Bureau and conducted in cooperation with extension departments of universities and with local trade and labor councils. The purposes were to institute an analytical study of labor under the National Industrial Recovery Act and to awaken interest generally in labor conditions.

ADULT ILLITERACY

This is a complicated problem and quite difficult as related to illiterate adults of low intelligence and poor environment. The group is distinctly under-privileged economically, mentally, educationally, socially, and culturally. The type is common in penal institutions. Traditional methods of instruction are inadequate for this purpose. Not only must the program begin with individual interests but often interests must be stimulated. The program may then work toward meeting needs. One report asserts that there is a group of 12,000,000 "functionally illiterate adults" rather than the 4,000,000 absolute illiterates normally considered. Rapid strides in the removal of illiteracy and our relatively low percentage of illiteracy gives us some satisfaction, but it is clear that the problem is still a large and an important one. Many of the states attack this problem through State Education Departments. The Emergency Education Program has this problem listed in its six-point outline of general objectives.

LIBRARIES AND MUSEUMS

Many overlook the important part that libraries and museums play in adult education. They, too, have suffered the past five years from inadequate support. The result is less usefulness than their rich resources promise. Nevertheless their contribution is noteworthy. The officers of these institutions meet every request for help that is within the reach of their funds and personnel. Indeed, many programs are advanced and deserve suitable recognition.

One example of library service in adult education will serve to illustrate the possibilities in this field. The Oregon State Library organized non-credit, non-fee reading courses in December, 1932. The program originally provided for suggestions for unemployed youth regarding good reading but it has reached people in all walks of life. More than 1,700 courses have been prepared and the service has extended throughout the state.

The Metropolitan Museum of Art in New York provides radio talks, motion pictures, free gallery talks, courses for teachers, and special courses for members. This is characteristic of the adult education program of other important museums. The Newark (N. J.) Museum provides a free workshop for sketching, modeling, collecting, and other spare-time activities. Adults are rapidly learning about the educational opportunities in and advantages of museums.

USE OF RADIO IN EDUCATION

There has been much deserved criticims of education broadcasts but 1934 has seen notable improvements in the use of this important medium of education. There are 18,000,000 American homes equipped with radio receiving sets. The improvement in education programs, according to Dr. Levering Tyson, Director of the National Advisory Council on Radio in Education, is found in new broadcasting techniques and in a greater variety of subjects presented to the radio public. The straight talking script is giving ground to round-table discussions, debates, and dialogues. News comments, current events, economics, government affairs, and international relations broadcasts have appreciably increased. A salutary effect of these improvements is the growth and spread of listening discussion groups in schools, colleges, public halls, and homes. Gregarious man is taking advantage of radio for useful and important social purposes.

Music has for a long time had a large share of broadcast time. There is a type of musical broadcast this year that reaches beyond mere entertainment to educational values. Symphony and philharmonic orchestras, bands, choruses, operas, and instrumental and vocal soloists, all definitely high grade in character, occupy an increasingly large part of radio programs. Art by radio is finding its place along with music.

An aroused public opinion has caused broadcast companies to give serious thought to their educational responsibilities. Program directors now seek the services of good educational broadcasters, and this year has seen a new emphasis in radio programs dealing with science, psychology, medicine, anthropology, exploration, law, government, and the drama. The creation of the Federal Communications Commission seems to have helped focus attention on the need for high grade programs. During the year many broadcasting companies published bulletins and special announcements to make known their work in education.

Schools, colleges, and universities of the air still flourish. The U. S. Office of Education, the National Education Association, the Department of Superintendents of the N. E. A., and the National Congress of Parents and Teachers are among the more important agencies that recognize the place of radio in education. Its full application to adult education remains to be realized.

RELIGIOUS EDUCATION

Churches are rapidly taking their rightful place as a positive force in adult education. The problem of society are at bottom mainly ethical, so that the potential significance of the church is considerable.

The Riverside Community Church of New York is an outstanding example of a church that conducts an extensive and progressive educational program for young and old. It has three different groups of adults—(1) parents of young children, (2) parents of adolescents, and (3) parents of children face to face with adulthood. Other adult groups discuss secular topics on Sunday. The church has a Guild of 204 members. Fifty women participate in Thursday morning discussions on international problems. Once a month a group visits museums studying medieval tapestries, illuminated manuscripts and miniatures, and Chinese porcelains. Thursday evenings a small group of choristers study Bach chorales and works of other great composers. Each Thursday afternoon there is a musicale in cooperation with the Juillard School of Music. The Women's Society cooperates with various welfare agencies such as the Charity Organization Society, the Manhattanville Day Nursery, and the Henry Street Settlement. Tuesday night is young men's night, the program including this year discussion groups, classes in public speaking, and a course on modern economic problems. The church has a Business and Professional Women's Club, a Department of Arts and Crafts, each with an extensive educational program.

The Federated Council of Churches, the International Council of Religious Education, the National Catholic Welfare Conferences, Jewish groups, the American Sunday School Union, the Missionary Education Movement are indicative of the forces at work in religious education. There is a directory of 125 national agencies working for the civic, social, moral, and religious education of adults. No denominational, relief, or philanthropic agencies are included.

SEMI-RELIGIOUS OR SOCIAL SERVICE AGENCIES

Neighborhood Houses, Settlement Houses, Catholic and Jewish organizations, Y. M. C. A's and Y. W. C. A's are providing educational opportunities for adults that are both secular and religious. Their programs are comprehensive and contribute in a large and important way to the adult education movement.

Groups in this classification are not always local in character. They are often woven together through great national organizations. Furthermore, they work cooperatively along many lines. To cite one example, the Y. M. C. A. Convention held in Philadelphia as a part of the National Public Affairs Forum considered the problem of the manufacture and traffic in arms and the public support of education through education. Such are the wide interests and activities of organizations of this type. Their part in housing relief projects is also especially praiseworthy.

INSTITUTIONS OF HIGHER LEARNING

No exact measure or complete study of the work of colleges and universities in adult education is at hand. The extension departments are serving large numbers. Some parts of their program may be classified as adult education if we regard the term as related to the non-degree-credit study of adults. Wide cooperation is extended to Federal and state agencies in the Emergency Education Program. For example, this year 13 institutions of higher education were chosen by the U. S. Office of Education to conduct Institutes for supervisors of Adult Education. Another example—New York Uiversity through a generous grant from the General Education Board has played a large part in leadership training and research in connection with the Emergency Program in New York City.

Alumni education, parent education, correspondence study, forums, lecture service, emergency junior colleges, and opportunity classes illustrate the wide range of offerings. Except for extension education in state universities, especially in rural areas, schools and colleges have not as a rule traversed very far from the traditional paths. Some of them recognize adult education as a new field of service, a new opportunity, and a new obligation in a social democracy.

CORRESPONDENCE STUDY

As a means of spreading and advancing adult education, home study by correspondence ranks high. Sufficient thought has been directed to this field to justify strong support for its potential values. Many colleges and universities have developed correspondence departments, and in many instances high educational standards have been observed. Commercial correspondence schools enroll thousands of adults and can no longer be ignored. Their work represents commendable social service. The chief problem is guidance in course selection. Vocational and general education courses are offered, and the individual learner has no complaint regarding variety of offerings. This is a field that merits a place in social planning. It should not be left to private enterprise alone. Bittner and Mallory's book entitled *Universal Teaching by Mail* (Macmillan, 1933) presents the field thoroughly and clearly.

PUBLIC SCHOOLS

It would be unjust to omit the work of public schools in adult education. They have played an important part in night school work, illiteracy, Americanization, parent education, and cooperation with the Emergency Education Program. Very often public school staff members work closely with local councils of Adult Education. Occasionally public schools have developed well balanced adult educational programs in line with modern needs.

The Board of Education in Des Moines under the leadership of Superintendent John W. Studebaker, now U. S. Commissioner of Education, has boldly experimented with the public forum and group discussion aspects of adult education. The Carnegie Foundation provided substantial financial assistance but this does not dim the glory of the public school officials who were responsible to the citizens of Des Moines for the character of the program. In connection with the Emergency Program 45 unemployed teachers in this progressive city recruited students for adult classes in a doorbell campaign. More than 48,000 reported for enrollment the first night classes were opened. Text books and mimeographed study outlines were provided by the school district. Add these adult students to the 70,000 who attended the forum meetings and a glimpse of adult education possibilities is impressively gained. Imagination, courage, persistent effort, and clear recognition of democratic ideals characterize the Des Moines program.

MISCELLANEOUS AGENCIES AND ACTIVITIES

A sampling of projects not mentioned elsewhere in this report must suffice at this point. It will serve to indicate the vast range of groups and activities engaged in adult education. Preparatory notes include reference to the following: the Virginia Institute of Public Affairs; Conference on Adult Education at the Western State Teachers' College, Kalamazoo, Mich.; Conference of Education Workers', held at Teachers College, Columbia University, under the auspices of Governor Lehman's Commission for the study of education problems in penal institutions for youth; eighth annual convention of the National Home Study Council in Chicago; People's School and Peoples' College Club in New York; National Public Affairs Forum in Philadelphia; Conference on Labor in Los Angeles, held jointly by the State Department of Education, the California Association for Adult Education, and the Y. M. C. A.; Negro Education Conference in Washington, D. C.; Chautauqua Institution, Chautauqua, N. Y.; the program of the General Federation of Women's Clubs, with its 14,000 clubs and 3,000,000 members; National Council of Jewish Women; the education problems and opportunities related to the Subsistence Homsteads movement; resident schools and camps for unemployed women; Missouri Adult Education Conference; Cooper Union in New York City, with an enrollment of 3,000; Norris, Tenn., program as a part of the large educational work planned in connection with the Tennessee Valley Authority; Virgin Islands adult education program; lecture bureaus; adult education councils as found in Boston, Detroit, Cleveland, New York, Denver, Minneapolis, and Albany; the Civic Federation of Dallas, Tex.; Brooklyn Neighborhood Groups; the Little Theater Movement; the North Carolina Adult Education Conference; Twentieth Century Adult Education Center; Adult Education Exhibit at New York University, attracting more than 10,000 visitors, and the Youth Movement. These merely illustrate the variety and spread of adult education.

COGNATE SOCIETIES AND RESEARCH INSTITUTIONS

(For further information, the reader may address the following organizations)

GENERAL

American Assn. for Adult Education, 60 E. 42nd St., New York City.

American Council on Education, 744 Jackson Place, Washington, D. C.

American Council of Learned Societies, 907 15th St., Washington, D. C.

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

American University Union, Columbia University, New York City.

General Education Board, 49 W. 49th Street, New York City.

Bureau of Educational Reference and Research, University of Michigan, Ann Arbor, Mich.

National Congress of Parents and Teachers, 1201 16th St., N. W., Washington, D. C.

National Council of Education, 1800 H Street, N. W., Washington, D. C.

National Education Assn. of the U. S. A., 1201 16th St., N. W., Washington, D. C.

National Home and School Assn., Inc., 17 E. 42nd St., New York City.

National Research Council, Division of Educational Relations, 2101 Constitution Ave., Washington, D. C.

National Society for the Study of Education, 10 Putnam St., Danvers, Mass.

Public Education Assn., 745 Fifth Ave., New York City.

INTERNATIONAL

Institute of International Education, 2 W. 45th St., New York City.

International Council for the Education of Exceptional Children, Minneapolis, Minn.

International Council of Religious Education, 100 E. 42nd St., New York City.

Pan-American Educational Congress, Universidad de Chile, Cosilla 2543, Santiago, Chile.

TEACHERS

American Federation of Teachers, 506 S. Wabash Ave., Chicago, Ill.

Carnegie Foundation for the Advancement of Teaching, 522 Fifth Avenue, New York City.

Educators Assn., 307 Fifth Ave., New York City.

National Student Federation of America, 218 Madison Ave., New York City.

Students Cooperative Society, 565 Fifth Ave., New York City.

Teachers Union, 70 Fifth Ave., New York City.

SCHOOLS

American School Citizenship League, 295 Commonwealth Ave., Boston, Mass.

Child Study Assn. of America, Inc., 221 W. 57th St., New York City.

National Assn. of High School Supervisors and Inspectors, University of Georgia, Athens, Ga.

National Assn. of Secondary School Principles, 5835 Kimbark Ave., Chicago, Ill.

National Kindergarten Assn., 8 W. 4th St., New York City.

Y. M. C. A. Educational Secretaries Assn., 55 Hanson Place, Brooklyn, N. Y.

COLLEGES AND UNIVERSITIES

American Assn. of Collegiate Registrars, University of Arkansas, Fayetteville, Ark.

American Assn. of Junior Colleges, Central College, Conway, Ark.

American Assn. of University Professors, 744 Jackson Place, Washington, D. C.

American Assn. of University Women, 1634 I St., N. W., Washington, D. C.

American Society for the Extension of University Teaching, 925 Chestnut St., Philadelphia, Pa.

Assn. of American Colleges, 111 Fifth Ave., New York City.

Assn. of American Universities, Yale University, New Haven, Conn.

Assn. for Colleges for Negro Youth, Shaw University, Raleigh, N. C.

Assn. of Land Grant Colleges, University of Maryland, College Park, Md.

College Entrance Examination Board, 431 W. 117th St., New York City.

National Assn. of Colleges and Universities, 1032 Stewart Ave., S. W., Atlanta, Ga.

National Assn. of State Universities, Miami University, Oxford, O.

National University Extension Assn., Bloomington, Ind.

New England Assn. of Colleges and Secondary Schools, Tufts College, Medford, Mass.

Phi Beta Kappa, 145 W. 55th St., New York City.

PROFESSIONAL EDUCATION

American Assn. of Teachers Colleges, State Normal School, Oneonta, New York.

American Medical Assn., Council on Medical Education and Hospitals, 535 N. Dearborn St., Chicago, Ill.

Assn. of American Law Schools, Tulane University, New Orleans, La.; Harvard University, Boston, Mass.

ASSN. OF AMERICAN MEDICAL COLLEGES, 25 E. Washington St., Chicago, Ill.

SECTION OF LEGAL EDUCATION, AMERICAN BAR ASSN., 1140 N. Dearborn St., Chicago, Ill.

SPECIAL EDUCATION

AMERICAN ASSN. TO PROMOTE TEACHING OF SPEECH TO THE DEAF, 1537 35th St., N. W., Washington, D. C.

AMERICAN CHILD HEALTH ASSN., 450 Seventh Ave., New York City.

AMERICAN HUMANE EDUCATION SOCIETY, 180 Longwood Ave., Boston, Mass.

AMERICAN PHYSICAL EDUCATION ASSN., 311 Maynard St., Ann Arbor, Mich.

NATIONAL ASSN. FOR THE DEAF, School for the Deaf, Trenton, N. J.

VOCATIONAL

AMERICAN ASSN. FOR THE ADVANCEMENT OF AGRICULTURAL TEACHING, E. Lansing, Mich.

AMERICAN HOME ECONOMICS ASSN., 41 Eliot Memorial Road, Newtonville, Mass.

AMERICAN VOCATIONAL ASSOCIATION, Department of Public Instruction, Harrisburg, Pa.

BUREAU OF AMERICAN WORKERS' EDUCATION, 416 W. 24th St., New York City.

NATIONAL VOCATIONAL GUIDANCE ASSN., 25 Lawrence Hall, Harvard University, Cambridge, Mass.

TRADE UNION UNITY LEAGUE, 2 W. 15th Street, New York City.

NOTE: for additional educational societies consult U. S. OFFICE OF EDUCATION, Washington, D. C.

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